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1893.

The Coal Trade.

By FREDERICK E. SAWARD.

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REVIEW FOR THE YEAR 1892.

The twentieth annual review of the fuel industry presented in the following pages furnishes some of the most important facts and figures which it has been the fortune of the compiler to have had the opportunity of presenting for the benefit of his readers. It is never the purpose of this work to appear as other than historical: there is no partisan or biased presentation of the conditions which existed or which environed a portion of the industry in the past year in the United States.

The use of coal increases; Great Britain is credited with an output of upwards of 185,000,000 gross tons per annum, while Germany produces 90,000,000 gross tons and the United States has a yearly product of 140,000,000 gross tons. The coal area of this country is estimated at 192,000 square miles, of which 120,000 square miles can be profitably worked at present. Its coal area is over three times larger than that of the rest of the world combined.

The following figures from the Census reports show the production in *net tons* of coal in the United States (including the mine consumption) for each Census year since 1850:

	Anthracite.	Bituminous.
1850	3,358,899	3,814,951
1860	9,398,332	5,775,077
1870	15,664,275	17,190,415
1880	28,649,872	42,776,624
1890	45,544,970	94,495,000
1892 (estimated product)	48,000,000	110,000,000

The output in the Anthracite districts of Pennsylvania, the largest single source of product in the country, keeps up to its proportion of the whole as the following table of shipment shows:

1887	34,641,017 gross tons.
1888	38,145,718 gross tons.
1889	35,407,710 gross tons.
1890	35,865,174 gross tons.
1891	40,448,336 gross tons.
1892	41,893,320 gross tons.

The shipments from the mines are reported from week to week; the large quantity mined but used by the employees and others is an important feature and is reported annually by the mine inspectors.

The year 1892 was one of the most important in the history of the

Anthracite coal trade; the tonnage was the largest in its history and the price also ranged much above that of recent years; as is well known the year '91 closed with a very unsatisiactory condition of affairs, due to the fight on the part of the producers for position in the tonnage record—with its consequent effect on prices. During January of the past year the condition was simply a disastrous one to all concerned in the mining of this class of coal; the price list made by one producer on the 19th of January for free burning at New York loading ports was less than had been the case in many years. It was withdrawn on the 28th of that month and during February there came the announcement that a controlling interest in the L. V. RR. and C. RR. of N. J. had been secured by the P. & R. RR. Co. This gave an entirely new phase to the situation, there was an immediate and marked strength to prices and there has been no complaint on the part of the producer from that time forward, except that more coal at the higher price could not be disposed of. The course of prices and the controlling of so large a portion of the tonnage by one concern aroused a popular outcry against the radical changes and legislatures and the courts were called upon to pass judgment as to the legality of the leases and the right to make the price what it has been. One thing is certain, the companies in the "combine" did not produce their usual tonnage in the past year, but very closely kept the price list, while others did heavier tonnages and it is doubtful if all averaged so good a price as the parties first named; their profits have been very great in any event. The growth of the use of small sizes of Anthracite coal—at the expense of the larger—has continued to be a feature of the business and accounts for a portion of the increase in the sum total; it must also be noted that the stocks carried by the "initial interests" at the close of the year were greater than at the same period in any preceding year.

The Bituminous output grows in proportion as the motive power of the railways of the country is augmented, and it must ever remain the steam fuel of nearly every part of the country, and the domestic fuel of a wide area, while Anthracite is the source of supply for domestic uses, in the Eastern and Middle States and to a degree in a portion of the central West. There are many improvements which should be made in burning the soft or Bituminous coals before they are adopted more extensively in the larger cities; smoke is a nuisance and an expensive one and the inventive genius of man will be most surely and amply rewarded when the Bituminous coals of the country can be used without the vast and wasteful smoke environment of the present day.

The imports of coal into this country are not great, and our exports are but 2½ per cent. of the total output, therefore it will be apparent to all that the main dependence of the coal miner and producer for a market, is the growth of fuel consumption in the United States. Importations of coal into this country are small and are principally from British Columbia and Australia to supply the Pacific Coast demand. Importations from Nova Scotia are very slight and not over 30,000 tons were received in the year past; the recent investments of American capital in Provincial mines may tend to an enlargement of the shipments but not to any great extent. Shipments of Alabama coal to Gulf ports as well as to foreign ports are noted from Mobile and other Southern ports, and an increase is reported which is most encouraging. At the same time the rate of transportation from the Alabama coal fields must be reduced before there can be any large business done in the way of exporting coal to foreign countries. Alabama coals are getting a share of the lower Mississippi River trade, and they are likely to show an increase during the coming year.

The activity in Bituminous coal in the past year has been very marked. Those districts in central Pennsylvania which send coal to the seaboard have found an increased demand; this in view of the largely increased tonnage done in 1891, is of much interest to the coal trade at large. The Beech Creek district has increased its output 130,000 tons; the Allegheny Mountain districts are 350,000 tons ahead of their tonnage for 1891. The Tyrone and Clearfield did not keep the increase noted in former years owing to the lack of facilities for transportation, in a measure, as also the lower prices made by other districts. With this exception and that of the "Cumberland," all the districts sending coal to the seaboard did well in their tonnage; those sending via the Southern routes more than holding the increases made in 1891. The Chesapeake & Ohio road shows an increased traffic of 300,000 tons for 1892, while the Norfolk & Western increased its business nearly 400,000 tons. The falling off in the "Cumberland" was said to be due to the desire to avoid competing for trade at the low prices made early in the year, but it must be remembered that there was a gain of 300,000 [tons in 1891, and of 700,000 tons in 1890, from what is known as the "Cumberland" district. The course of trade was hampered nearly all the year by the lack of motive power or proper facilities for moving an amount of tonnage which the market would have absorbed. The so-called Seaboard Soft Coal Association was inoperative, for there were prices made that were not the agreed upon rates; this reached such a pass that the carrying companies have had no profit on their business and the conclusion has been reached that an advance must and will be made during the coming year, necessarily bringing the market nearer to the scheduled rates asked for coal in the past year but affording no greater profit to the producer.

The conditions of the Pittsburgh river trade have undergone a change of recent years. Cheap lands, cheaper mining and a shorter haul in the Kanawha district, nearly identical circumstances in the Illinois and Kentucky fields, coupled with the total inability of the Pittsburgh men to remove from their shoulders the heavy handicap of tolls on the Monongahela navigation system have resulted in the encouragement of these new fields to the disadvantage of the older. During the whole of the dry season of the past year when the curtailment of supply from river points should have maintained the price of Pittsburgh product, the output from other fields sending by rail to the Southern markets kept up the supply and the price down. Pittsburgh river coal operators are beginning to recognize more clearly every day that the competition of their rivals of the Kanawha and kindred districts is threatening the very life of their trade. Unable to economize in any other quarter, they must do so in the cost of mining and they are thinking of once and for all equalizing the price with that paid in the Kanawha district.

In Ohio, Illinois and the other central States the output of coal has been larger and prices have been in the main better for the producer; in Indiana there has been an increased output and some of the coals have brought large advances over the preceding year's values; a comparison will show an average gain of twenty cents a ton on all these coals. Iowa, Kansas, Missouri, Colorado, Utah and Wyoming all figure up a larger output than heretofore, and at better prices than during the preceding year; in central Ohio the operators find that there has been such unprofitable competition for business that they have concluded an armistice and formed a corporation to handle the coal for the coming year; all that remains now is to work out the details and get the new company into operation as soon as possible. The coal and coke trade of the Virginias has grown at a rapid pace and it is sent to the Western markets, as well as to those of the Atlantic seaboard and during the coming year greater efforts than ever will be put forth by N. & W., the C. & O. and the B. & O. producers to put their excellent fuel into the markets of the Northwest.

Recent events have drawn attention to the coals of Nova Scotia as possible competitors with our American Bituminous coals in the New England States. The greatest production in Nova Scotia of which there is any record is for the year which ended December 31st, 1891, when there was produced a total amount of 2,044,784 tons, of which she sold 1,849,945 tons. Of these sales only 25,000 tons—mainly culm—were sent into the United States ports in the immediate vicinity of Nova Scotia. It is not at all likely that there would be any vast increase in her trade with the United States under any circumstances; we have the superior quality and it is afforded at a less cost than the poorer can be imported for. Canada uses about 5,400,000 tons of coal, of which she buys from Nova Scotia about 1,700,000 tons and the balance is largely derived from the United States, for the official figures show that during the fiscal year ending June 30th, 1892, there went from the United States to Canada 1,390,067 tons of Bituminous coal on which she levied a duty of 60 cents per ton and also received of American Anthracite coal 1,617,108 tons on which she levied no duty.

Coke makers had a good business during the year 1892. There were no strikes or labor troubles of any importance, and the Connellsville district shows an output of some 6,200,000 tons. The Pocahontas and the Monongah cokes of West Virginia have also made rapid advances in favor during the year. As a rule the tonnages from the Pennsylvania districts, aside from the Connellsville, have not gained on the preceding year's output. The introduction of crushed coke, made into sizes for domestic uses is one of the features of this branch of the fuel industry which has been pushed with more than usual vigor during the past year. Prices of the Connellsville have remained at the same rates on cars at the ovens, per ton of 2,000 pounds—furnace coke, $1 90; foundry coke, $2.30; crushed coke, $2:65.

Details of the exports for the calendar years named are stated below:—

COUNTRIES.	1889.	1890.	1891.	1892.
*Great Britain and Ireland	42,860	74,577	100,419	82.159
*Germany	19,952	33,488	46,650	41,957
*Other countries in Europe	27,072	39,580	58,575	55,914
British North America	1,288,345	1,395,056	1,565,635	1,639,175
Mexico	58,953	85,223	159,004	122,038
West Indies	319,146	371,220	468,819	504,930
United States of Columbia	21,549	37,021	34,749	30,899
Other countries in South America	7,757	20,963	20;032	28,489
Asia and Oceanica	2,082	6,251	2.911	1,272
Other countries	5,068	11,886	20,327	492
Total gross tons	1,792,784	2,075,265	2,477,120	2,497,325

*Mainly "bunker coals" loaded at Hampton Roads. Not all the exports to Canada or to Mexico, are included in this statement, for the reason that no collection is made of the exports *by rail* to the countries named.

Imports in 1892 were 1,143,304 tons of Bituminous; exports were 851,639 tons of Anthracite and 1,645,686 of Bituminous to make the total of 2,497,325 tons reported above.

COAL PRODUCED IN THE UNITED STATES AND TERRITORIES.

The figures below are authentic, and fairly represent so many gross tons in the calendar years named; while the returns from certain States are made by mine inspectors and others for fiscal years, and in net tons, there is always a large amount of coal used by the local industries, the mining population, railroads in the districts, country banks for farmers' use, small mines that are not under the mine inspectors' regulations, and in fact, there is a vast amount of supply coal that never gets into the returns. In the item of Anthracite we have given here the shipments, or commercial coal only.

States.	1889.	1890.	1891.	1892.
Alabama	4,000,000	4,200,000	4,500,000	5,250,000
Arkansas	300,000	500,000	400,000	450,000
California	80,000	90,000	90,000	90,000
Colorado	2,373,875	3,000,000	3,600,000	3,775,000
Dakota (N. & S.)	100,000	100,000	150,000	150,000
Georgia	225,000	225,000	225,000	250,000
Illinois	12,500,000	13,000,000	13,000,000	14,000,000
Indiana	3,000,000	3,500,000	3,100,000	3,250,000
Indian Territory	600,000	700,000	1,000,000	1,000,000
Iowa	4,000,000	4,200,000	4,000,000	3,750,000
Kansas	2,300,000	2,600,000	2,750,000	2,800,000
Kentucky	2,205,434	2,483,144	2,879,082	3,000,000
Maryland	2,637,839	3,231,185	3,420,660	3,058,350
Michigan	60,000	60,000	90,000	100,000
Missouri	3,500,000	3,350,000	3,200,000	3,250,000
Montana	123,871	450,000	470,000	600,000
New Mexico	750,000	800,000	800,000	800,000
Ohio	12,000,000	12,250,000	12,300,000	13,500,000
Oregon	125,000	75,000	90,000	60,000
Penn. Anthracite	35,407,710	35,865,174	40,448,336	41,893,316
Bituminous	33,000,000	34,000,000	36,000,000	37,500,000
Tennessee	2,650,000	2,900,000	2,750,000	2,500,000
Texas	200,000	300,000	350,000	400,000
Utah	260,000	361,000	390,000	370,000
Virginia	2,000,000	2,250,000	3,000,000	3,500,000
Washington	1,000,000	1,500,000	1,800,000	1,200,000
West Virginia	4,726,047	5,424,904	6,200,000	6,500,000
Wyoming	2,000,000	2,000,000	2,250,000	2,000,000
Totals	132,124,776	139,515,407	149,752,418	154,996,666

PENNSYLVANIA.

THE BITUMINOUS COAL TRADE.

Pennsylvania has within her borders not only the largest body of Anthracite coal in America, but she possesses the finest field of Bituminous coal, not surpassed by any for the beauty of its structure and affording every variety of that description of coal of the best qualities and in a very accessible form. In five counties of the sixty-six in the State are found detached fields of semi-Bituminous coal—Bradford, Tioga, Huntingdon, Bedford and Fulton, while twenty other counties in the western and northwestern part of the State are found to contain Bituminous coal, a portion of which along the eastern margin of the field is semi-Bituminous, viz: Somerset, Fayette, Greene, Washington, Westmoreland, Cambria, Indiana, Armstrong, Alleghany, Beaver, Lawrence, Butler, Clarion, Jefferson, Clearfield, Blair, Centre, Clinton, Elk, Venango, Mercer. There are detached beds in some few of the other counties, but little coal is marketed therefrom. The coals mined in this State are used in gas making, iron smelting, forging, blacksmithing and steam raising in all the industrial sections of the Middle and Eastern States, while nearly every ocean steamer uses this fuel for steam. In addition to all these uses to which the coal is put is that used in the making of coke. This amounts to an annual business of over 7,000,000 tons, using perhaps 10,500,000 tons of coal. The coke is used in the blast furnaces of the State; it is shipped to neighboring States and to foreign countries.

In the Eleventh Census, for the calendar year 1889, the output is given at 36,174,089 tons of 2,000 lbs. From the best sources of information we put the production of Bituminous coal in Pennsylvania at the following in gross tons:—

1887	30,000,000 tons.	1890	34,000,000 tons.
1888	33,000,000 tons.	1891	36,000,000 tons.
1889	32,000,000 tons.	1892	37,500,000 tons.

The Mine Inspectors of the several districts, in making their report, state the product as follows:—

Districts.	Tons 1889.	Tons 1890.	Tons 1891.
I.	2,640,390	3,944,433	3,943,265
II.	6,915,171	6,975,879	6,751,615
III.	2,645,407	2,780,031	3,361,550
IV.	3,143,322	3,190,288	3,834,646
V.	6,026,681	6,471,083	5,463,801
VI.	4,205,029	5,790,714	6,959,246
VII.	3,738,227	4,572,325	4,848,174
VIII.	5,215,946	6,142,341	6,669,159

These are tons of 2,000 lbs., and the coal used to make the coke is included. The coke made in the year 1891 is stated at 6,442,516 net tons.

DETAILS AS TO BUSINESS OF MANY REGIONS.

We give herewith a short description of the principal regions. Details of tonnage will be found at the close.

Clearfield:—What is known in market as Clearfield coal is mined in Clearfield and Centre Counties, Pennsylvania. Average distance from collieries in this region *via* the Tyrone and Clearfield division of the Pennsylvania RR.—To Philadelphia, 255 miles; to South Amboy, 322 miles; to Baltimore, 227 miles.

The Beech Creek is the shortest route to New York harbor by forty miles, while great advantages for connections north, east and west are given by its connections with the Pine Creek RR. and the N. Y. Central RR. The shippers over the Beech Creek are Wigton & Sons, the New Coaldale Co., the Bloomington Mining Co., and the Clearfield Bituminous Coal Corporation. Pardee colliery did 384,877 tons in 1892.

The unusual competition for business in the steam coal trade of the eastern seaboard culminated last year in some of the lowest prices which have ever been recorded; there was coal sold at New York Harbor at $2.50 a ton (f. o. b.) and greater quantities at a few cents above this figure; these prices of course could only be made under a low rate of tolls. So unremunerative have these figures become that it is now understood that the carrying companies are a unit in the determination to have more profitable figures.

In what is known as the North Pennsylvania region is found the coal sold in market as "Blossburg" and "Barclay" coal. The first coal went out in 1840.

Production was by the following, net tons:—

	1889.	1890.	1891.	1892.
Blossburg Coal Co.	253,309	236,762	338,889	387,023
Morris Run CM. Co.	389,105	320,117	334,545	286,304
Fall Brook Coal Co.	393,512	331,892	323,906	82,578
Towanda Coal Co.	82,740	73,947	....	....
Long Valley Coal Co.	50,620	50,000	61,057	53,517

Antrim mines, Tioga County, 225,024 tons in 1892.

In 1892 a tonnage of 22,124 tons of coke is reported from Tioga coke works. The "Erie" Ry. Co. gave up working the mine (known as Towanda Coal Co.) with the close of 1890, its lease having expired.

Broad Top:—This is one of the oldest of the coal producing districts in the State; the outlet to market is via Huntingdon & Broad Top road to the Pennsylvania road at Huntingdon, and the East Broad Top road via P. RR. at Mount Union. The H. & B. T. road also serves as an outlet for coal from Maryland and West Virginia.

Snowshoe:—Located in Centre County, it covers an area of about eight miles in length and some four miles in breadth, and is situated on both sides of Beech Creek. The coal finds an outlet to market via the Bellefonte & Snow Shoe and Bald Eagle Valley connections of the Pennsylvania RR. The operations are carried on by the Lehigh Valley Coal Co. and this district shared in the growth of the Bituminous trade, both as to the quantity of coal and of coke forwarded.

Allegheny Mountain:—Few of the feeders of the P. RR. in point of tonnage show such a growth as does this district. It is now next to the Clearfield district in point of tonnage forwarded. Many large consumers of coal, such as the Cambria Iron Works, have their seat of operations located in this district.

Cambria and Clearfield:—This is a district developed in 1890 as a feeder to the Pennsylvania RR. system; it shows 329,415 tons of coal and 58,758 tons of coke for that year. In 1891, 495,340 tons, and 684,077 tons in 1892.

Tipton:—The coal from the operation of the Tipton Coal Co. continues to find favor with its users and the tonnage last year was in excess of that of the preceding year.

FRUGALITY:—The seat of operations of the Cresson & Clearfield Coal & Coke Co. Analyses of coke made by the company showed; 89.97 fixed carbon; 9.37 ash; 0.66 sulphur. The line of railroad serving this district has passed into the control of the Pennsylvania RR. Co.

MERCER:—This district takes in the mines of Mercer and Butler Counties; it is credited with an output of about 700,000 tons annually and with proper facilities in the way of railway connections there would be an increase. The coal finds a market at Buffalo and in Canada; it is of good quality; the seam ranges from four to four and a half feet in thickness, is easily mined and is reached by a shaft. This coal is one of the most popular reaching the Buffalo market and is in the hands of pushing and enterprising operators

DAGUS:—Principal operator in this district is the Northwestern Mining & Exchange Co., an auxiliary of the Erie Ry. Co. Its output in '89 was 715,486 tons, in '90 it was 750,000 tons, in '91—747,106 tons, and 688,193 tons in '92. There are also in this district, the Shawmut, Noble and Brock mines owned by the Cartwright Co., so that taking all the shipments over the Toby branch, there is an average of nearly 4,000 tons of coal per day and when we bear in mind that all this coal comes from a vein that does not average over three (3) feet in thickness, one may be surprised at the magnitude of the coal business in the Dagus coal and coke region.

WESTMORELAND:—This famous gas coal district was operated to the fullest extent last year, and more than regains its statistical position for we find a business 250,000 tons in excess of the year 1891.

The mines known as Fairbanks and Foster are actually in Westmoreland County though the town of Saltsburg, the loading point, is in Indiana County. The output given in the State reports for 1890 shows up 250,300 tons; the coal analyzes: 31.48 volatile matter, 61.50 fixed carbon, 6.04 ash, and 1.17 sulphur.

REYNOLDSVILLE:—One of the most important producing districts in the State. The B., R. & P. Ry. Co. reports net tons for fiscal year ending June 30th, 1892, to be 1,675,684 tons of coal and 328,976 tons of coke.

This coal region is destined to become one of the most important in the State of Pennsylvania, from the fact that the quality of the coal is so superior for steam raising purposes, and from the fact that the development is in the hands of some of the most enterprising corporations in the country; corporations officered by men who have been trained in the coal business in all its branches and who therefore know what is needed for a proper exploitation of their affiairs. The coal seam which is being worked is what is geologically known as the lower Freeport; it is of workable thickness wherever found and of such a composition that it is a most excellent steam coal; so valuable is it regarded on this score that the operators of other districts deem themselves fortunate indeed if they possess a coal nearly approaching its chemical constituents. The fastest railway trains in the world are making use of this coal as fuel for steam raising, the supply coming from the Bell, Lewis & Yates CM. Co. which is practically the owner of the coal area of the district. They not only own and operate the property formerly known under their name, but that of the Rochester & Pittsburgh C. & I. Co. and the Helvetia property formerly worked by Mr. Adrian Iselin. The largest tipple in the world is in use at the Soldier Run mine belonging to this company. It is of iron and spans six railroad tracks, four for the cars being loaded to stand upon and two for the movement of empties. There are eight dumps upon the tipples arranged in four pairs. Four are for run-of-mine coal and four are provided with screens. A total of 700 men and boys are now employed and that number will be gradually increased as development progresses for the idea is to bring the capacity of the plant up to 7,000 tons daily within a year. See other details elsewhere in this work.

The coal from this region reaches the markets of the North and Northeast, where it is principally consumed, by way of the B., R. & P. Ry. By the building of the new line of road to be opened early this year, from near the town of Du Bois to Clearfield, where a connection will be made with the Beech Creek and thence with the Philadelphia & Reading system, access will be had to the tide-water markets and this coal will then become a competitor with those coals mined along the Pennsylvania and Beech Creek systems.

The Berwind-White CM. Co. have considerable territory in Jefferson County, which they have been developing in the past year, and it is rumored that they may seek the markets to be had from Buffalo as a basis of operations. In what is known as the Punxsutawney field, six large mines are in operation, known as the West Eurekas, Nos. 1, 2, 4, 5, 6, and 10, and in addition to shipping coal, the B.-W. CM. Co. has two extensive coke plants. The coal from the Punxsutawney field is shipped over the Pennsylvania & Northwestern RR., of which road E. J. Berwind is president. Connection is made with the Pennsylvania system at Bellwood. In the Du Bois district, the company holds thousands of acres. Mr. S. R. Peale is also in control of considerable territory that will be developed by the opening of the Beech Creek extension.

The tonnage is growing at immense strides, and in the past year the Bell, Lewis & Yates CM. Co., sold over 3,300,000 tons of coal and 350,000 tons of coke. We have the following details of production for the calendar year 1892: B., L. & Y. CM. Co., 1,302,500 coal and 25,000 coke; R. & P. C. & I. Co., 1,438,800 coal and 317,370 coke; Falls Creek M. Co., 150,000 coal; Standard Coal Co., 57,830 coal; Jefferson Coal Co., 180,000 coal; Helvetia, 175,000 coal. All net tons of 2,000 lbs.

PENNSYLVANIA RAILROAD TONNAGE.

Districts.	Bituminous. 1891.	Bituminous. 1892.	Coke. 1891.	Coke. 1892.
Snow Shoe	182,159	121,575	62,241	57,748
Tyrone and Clearfield	3,581,874	3,351,343	....	....
Tipton	37,684	39,655	....	....
Gallitzin and Mountain	1,333,745	1,458,859	303,876	273,474
West Pennsylvania RR.	584,061	528,396	198,052	151,515
South-West Penn. RR.	375,591	436,965	3,041,702	4,359,473
Westmoreland Region	1,908,352	2,167,222	503,330	295,415
Monongahela Region	617,043	740,132	112,138	212,138
Pittsburgh Region	321,913	523,330	....	....
Philadelphia & Erie RR	123,810	112,034	....	....
Karthaus	146,322	177,782	....	....
Cambria and Clearfield	495,340	684,077	57,955	65,524

All net tons of 2,000 lbs. Anthracite over this line credited elsewhere. Total coal and coke carried:—In 1888, 15,771,406 tons; in 1889, 15,578,051 tons; in 1890, 17,110,290 tons; in 1891, 17,891,969 tons; in 1892, 19,897,633 tons.

TONNAGE DETAILS OF IMPORTANT DISTRICTS.

These details are of districts furnishing more than half the output credited to this State. Taken in connection with those of some minor districts, as reported by the Pennsylvania RR. Co. in the statement of their business given elsewhere, and the coke tonnage elsewhere reported, it offers a very clear insight as to the trade and traffic in coal in this Commonwealth.

Clearfield District.	1888.	1889.	1890.	1891.	1892.
Tyrone-Clearfield div., P.RR.	3,389,864	3,215,630	3,389,450	3,256,147	2,867,777
Beech Creek RR	1,694,495	1,556,930	2,081,173	2,632,714	2,763,145
Coke per B. C. RR	64,633	55,369	93,369	76,749	62,147
North Pennsylvania District.					
Blossburg coal tonnage	1,106,959	1,035,926	888,771	908,451	980,929
Towanda coal tonnage	109,727	82,740	73,947	....	....
Long Valley coal tonnage	54,000	50,620	50,000	61,057	53,517
Broad Top District.					
H. & B. T. RR. tonnage	375,958	376,801	515,309	523,638	641,130
East Broad Top RR., through	55,795	72,253	70,764	47,575	104,763
East Broad Top RR., local	91,458	83,533	97,409	89,742	78,676
Snow Shoe District.					
Coal tonnage, P. RR	141,099	142,942	176,799	182,159	125,876
Coke	21,048	4,370	43,045	62,241	57,748
Allegheny Mountain District.					
Coal tonnage via P. RR	917,732	878,445	1,268,588	1,333,745	1,458,859
Coke tonnage via P. RR	261,464	204,311	291,921	303,876	273,474
Monongahela District.					
Shipments by water	4,498,430	4,250,000	4,400,000	4,500,000	4,200,000
Dagus District.					
"Erie" system, Elk County	704,808	715,486	750,000	750,000	750,000
Westmoreland District.					
Gas coal via P. RR	1,775,322	1,770,811	1,249,160	1,908,352	2,167,222
[A large tonnage of coke is also made and shipped, see P. RR. statement.]					
Myersdale District.					
Somerset County	351,177	375,000	400,000	400,000	400,000
Mercer District.					
Mercer and Butler Counties	672,189	650,000	700,000	700,000	700,000
Reynoldsville District.					
Tonnage of mines in Jefferson County	2,275,616	2,500,000	2,750,000	3,000,000	3,500,000
Buffalo, Rochester & Pittsburgh Ry. Co., coal	....	991,076	1,234,630	1,627,018	1,675,684
B., R. & P. Ry. Co., coke	....	231,565	189,912	361,177	328,976
Western N. Y. & P. RR. Co.	....	1,660,821	1,883,137	1,747,167	1,746,767
Allegheny Valley RR	1,222,192	1,093,156	1,166,900	1,402,250	1,621,473

All for calendar years; all net tons of 2,000 pounds except H. & B. T. road and E. B. T. RR. tonnages.

ANTHRACITE COAL STATISTICS.

THE ANTHRACITE COAL FIELDS.

Of the greatest importance, by reason of the magnitude of the output and the wide extent of the country where this output is sold, is that territory known as the Anthracite coal fields of Pennsylvania. Their location is generally well known, and no particular reference is needed thereto beyond the outline of the area; this is described as occupying in part the counties of Lackawanna, Luzerne, Carbon, Schuylkill, Columbia, Northumberland and Dauphin. Sullivan County contains a detached deposit, known as the Loyalsock field, which produces a coal similar to that found in the Lykens Valley district, except in the color of its ash, which is white. In trade circles the SCHUYLKILL region includes the western middle coal field, and that portion of the southern coal field west of Tamaqua. The LEHIGH region includes the eastern middle coal field, and that portion of the southern coal field east of Tamaqua known as the Panther Creek Basin. The WYOMING region includes the Wyoming and Lackawanna Basins, which together form the northern coal field. In these there are many sub-divisions.

The Geological Survey has now completed the mapping of the Anthracite fields and from these maps there has been made a computation of the areas of the several fields with the following results as compared with the estimate quoted:

COAL FIELDS.	Measured.	Estimated.
Northern	173.6	200
Eastern Middle	34.4	40
Western Middle	95.8	90
Southern	184.8	149
Western Northern (Loyalsock)	...	...
Total area	488.6 sq. miles.	470 sq. miles.

PRODUCTION.

The tables compiled by Prof. P. W. Sheafer, for the years 1820 to 1868 inclusive, and since 1868 by the Bureau of Anthracite Coal Statistics, have been adopted as the most correct so far as a report of the output is concerned. This table does not include the coal sold to the local trade nor that consumed for fuel at the collieries. The figures given by the mine inspectors, in their reports to the Governor of the State show the total production. It should be remembered that so far as this chapter of this work is concerned the ton named is always that of 2,240 pounds. Production, 1820 to 1887 inclusive, 679,753,332 tons.

PRODUCTION IN EACH DISTRICT, WITH ITS PERCENTAGE.

Year.	Schuylkill.	Pr. Ct.	Lehigh.	Pr. Ct.	Wyoming.	Pr. Ct.
1886	9,381,407	29.19	5,723,129	17.81	17,031,826	53.00
1887	10,609,028	30.63	4,347,061	12.55	19,684,929	56.82
1888	10,654,116	27.93	5,639,236	14.78	21,852,365	57.29
1889	10,474,364	29.58	6,285,421	17.75	18,647,925	52.67
1890	10,867,821	30.31	6,329,658	17.65	18,657,694	52.04
1891	12,741,258	31.50	6,381,838	15.78	21,325,239	52.72
1892	12,626,784	30.14	6,451,076	15.40	22,815,460	54.46

SHIPMENTS BY THE ANTHRACITE COMPANIES.

	1889.	1890.	1891.	1892.
P. & R. RR	7,128,694	7,527,646	8,601,121	15,135,581
L. V. RR	6,504,118	6,768,451	7,220,428	....
C. RR. of N. J	6,021,592	5,615,638	5,857,968	5,271,131
D., L. & W. RR	5,502,046	5,792,767	6,198,049	6,529,649
D. & H. C. Co	3,812,780	3,674,857	3,939,918	4,058,526
Penn. RR	3,884,977	4,017,654	4,994,509	5,571,320
Penn. C. Co	1,335,974	1,428,385	1,692,419	1,921,029
Erie RR. Co	1,217,529	1,029,777	1,204,271	1,338,822
N. Y., O. & W. Ry	....	....	695,771	807,071
D., S. & S. Ry	....	....	43,882	1,210,187
Total gross tons	35,407,710	35,865,174	40,448,336	41,893,316

ACTUAL PERCENTAGES OF THE WHOLE SHIPMENTS.

	1887.	1888.	1889.	1890.	1891.	1892.
P. & R	21.81	18.81	20.13	20.99	21.26	36.14
L. V	16.70	17.27	18.37	18.88	17.85	......
C. RR. of N. J	14.00	15.05	17.01	15.66	14.48	12.59
D., L. & W	17.97	18.34	15.54	16.16	15.32	15.59
D. & H	11.69	11.76	10.77	10.25	9.74	9.68
P. RR	11.01	11.94	10.97	11.21	12.35	13.29
P. C. Co	4.63	4.26	3.77	3.98	4.19	4.58
Erie	2.19	2.56	3.44	2.87	2.98	3.32
	100.	100.	100.	100.	98.17	95.19

In 1891 the N. Y., Ontario & Western Ry. is credited with 1.72 per cent., and the D., S. & S (Coxe Bros.) with .11 of 1 per cent.

In 1892 the O. & W. is put at 1.93 per cent., and the D., S. & S. 2.88 per cent.

The D. & H. C. Co. is said to have given the P. RR. 400,000 tons in 1892, that is credited to the latter instead of to the former company, thus changing their respective percentages. We have no division of the D., S. & S. tonnage; this is part of the Coxe tonnage and heretofore it was credited to the road it passed to, but since the completion of the D., S. & S. in December, 1891, the coal has been credited thereto as an *initial* interest. It probably went very largely to the Reading system.

MONTHLY PRODUCTION.

Year.	Jan.	Feb.	March.	April.	May.	June.
1887	2,243,312	2,551,003	2,911,272	2,786,796	2,700,353	2,710,708
1888	2,255,692	2,528,322	2,685,728	2,856,593	2,851,470	2,977,648
1889	2,622,529	2,097,662	2,103,062	2,274,199	3,016,531	3,033,216
1890	2,281,578	1,857,452	2,105,461	2,579,347	3,096,551	3,445,562
1891	3,138,961	2,377,201	2,515,459	2,813,693	3,339,534	3,780,242
1892	2,809,866	3,216,972	3,072,849	2,944,503	3,531,121	3,827,924

Year.	July.	August.	Sept.	Oct.	Nov.	Dec.
1887	2,761,624	3,198,726	3,137,654	3,185,299	3,386,190	3,068,078
1888	3,366,273	4,097,563	3,916,325	4,187,527	3,718,652	2,703,923
1889	3,627,523	3,625,683	3,186,883	3,711,870	3,372,814	2,735,734
1890	3,310,078	3,291,652	3,428,078	3,892,717	3,501,487	3,065,208
1891	3,791,339	3,146,436	3,333,404	4,496,534	4,127,557	3,587,971
1892	3,654,424	3,693,924	3,760,136	4,060,126	3,769,710	3,596,081

TONNAGE TO TIDE-WATER.

The tonnage to tide-water ports for shipment does not keep up its proportion of the enlarged sum total. This is due to facilities now offered by rail connections to the New England States in all directions; the railroad companies in many sections of the country formerly cared little for Anthracite coal traffic, but of late they are endeavoring in every way to foster this traffic by making favorable rates of freight. Tonnage to the tide ports has been, in the years named:

1887	12,081,826 tons.	1890	11,792,317 tons.
1888	13,657,604 tons.	1891	13,313,719 tons.
1889	12,217,862 tons.	1892	13,593,541 tons.

It may be remarked that the figures showing the tide-water business are to be regarded as not conclusive as to the amount used in the territory formerly supplied from the tide-water shipping ports; the growth of the "all-rail" business has been large, and whatever the quantity so furnished may be, this—and it is a most difficult factor to grasp the immensity of—should be added to the figures above recorded as the tonnage to tide ports, in order to make an exact estimate.

STOCK ON HAND, AND CONSUMPTION.

To figure the amount entering into consumption is difficult, for one has at disposal only the stock reported by the companies at tide, the total shipments, and the stock at close of year. Based on this, we have the following figures:

	1888.	1889.	1890.	1891.	1892.
Stock, January 1	130,977	652,156	1,026,107	565,652	754,432
Shipments	38,145,718	35,407,710	35,865,174	40,448,336	41,893,320
Total supply	38,276,695	36,059,866	36,891,281	41,013,988	42,647,752
Stock, December 31.	652,156	1,026,107	565,652	754,432	657,868
Consumption	37,624,439	35,033,759	36,325,629	40,259,556	41,989,884

Naturally, the above cannot be taken as actual consumption, but it will serve to show the course of trade; stocks held by the companies at other than tide ports are not included, neither can one enter the question of stocks held by retailers at the end of the year; as they are greater or less according to the climatic changes in the winter season, so will the "output" the succeeding year be affected.

The severity of the winter of 1892-93 is likely to clean up all stocks and, therefore, one may look for a large increase in the output during the calendar year 1893.

PRICES FOR ANTHRACITE COAL.

This topic perhaps forms one of the most interesting features of the work and a review of the past year furnishes a very graphic illustration thereof. In the month of January prices at tide-water had reached a very low ebb, due principally to the bitter warfare on the part of the producing interests for a tonnage record during 1890 and 1891, the circular prices made in the fall of '91 were not adhered to by any of the sellers and large discounts were made from the nominal lists long before the new year set in. In February there came strength to the market prices from the announcement of the leasing by the P. & R. RR. Co. of the Lehigh Valley system and that of the C. RR. of N. J., (the latter through the Port Reading RR Co., a New Jersey corporation) and it was the public opinion that by reason of the securing of representatives (persons supposed to be friendly to the many financial backers of the P. & R.) in the Board of Directors of the D., L. & W. RR. Co. and that of the D. & H. C. Co., that an interest sufficiently large enough to control a majority of the output of Anthracite had been secured. The latter conclusion soon proved to be a fallacy and the only feature of the trade conditions which might be termed a "combine" was in the control of Philadelphia & Reading output, that of Lehigh Valley Coal Co., that of the Lehigh & Wilkes-Barre Coal Co., and that of certain individual shippers on both the L. V. and the C. RR. of N. J. systems in Pennsylvania, whose coal was bought at the mines and the shippers guaranteed a rate of tolls not to exceed 40% of the New York tide-water selling prices as realized by the P. & R. C. & I. Co. for its coal.

As has heretofore been stated, the market was quite demoralized from the over-production in '91, and while ostensibly the old list was in force, the actual selling prices were far less. To arrive at a solution of the difficulties environing the situation the Lehigh & Wilkes-Barre Coal Co. issued a price list about January 19th which showed a net rate as follows at the New York loading ports :—

	Broken.	Egg.	Stove.	Chestnut.
	$3 25	$3 35	$3 50	$3 00
On January 28th the list was raised to.......	3 65	3 75	3 90	3 40

It is stated that some of the coal did not realize the increased figures.

During February and March there was no change in the list price, until the 17th of March, when the price of Chestnut was raised to $3.65 per ton f. o. b.

On April 28th prices were made...........................	3 75	3 90	4 15	3 90
May 26th Chestnut was increased, making the list...	3 75	3 90	4 15	4 05
June 29th, change to...	3 90	4 20	4 50	4 40

There was such a volume of old orders that the April and May prices were not realized; it is claimed there was a nearer approach thereto in June.

September 1st, change to	4 00	4 40	4 75	4 65

And at these last-named figures the circular remained until the end of the year; the prices in the last half of the year were uniformly maintained in spite of the large tonnage mined by the several companies; this strength was mainly due to the P. & R. Co's product being so large a factor in the market, the elimination of the competition by and from individuals not continuing the business and the general desire on the part of all the large producers to recoup the losses made in the early part of the year, when the rates were unusually low, as shown above.

The desire to do as much tonnage as possible while the prices were good led to a heavy production during the year 1892, which would doubtless have had a most depressing effect on prices at the turn of 1893 but for the unusually severe winter weather which was experienced in the first two months.

Summing up the situation, and carefully bearing in mind the previous remarks as to the wide fluctuations from the list in the fall months of 1890 and 1891, we append official prices for free-burning coals, f. o. b. gross, as made by the sales agents :—

1890.	May 17.	June.	July.	Sept.	Oct.	Nov.	Dec.
Broken	$3 40	$3 35	$3 65	$3 50	$3 75	$3 75	$3 75
Egg....................	3 40	3 50	3 75	3 90	4 05	4 10	4 10
Stove	3 50	3 75	4 00	4 15	4 30	4 40	4 40
Chestnut.............	3 25	3 50	3 65	3 75	3 95	3 95	3 95

1891.	Jan.	April.	June.	July.	Sept.	Oct.	Nov.
Broken	$3 75	$3 50	$3 65	$3 65	$3 65	$3 75	$3 75
Egg	4 10	3 60	3 75	3 85	4 00	4 15	4 15
Stove	4 20	3 75	3 90	4 05	4 25	4 40	4 40
Chestnut	3 75	3 50	3 65	3 75	3 90	4 15	4 15

1892.	Jan. 19.	Jan. 28.	Mar. 17.	April. 28.	May 26.	June 29.	Sept. 1
Broken	$3 25	$3 65	$3 65	$3 75	$3 75	$3 90	$4 00
Egg	3 35	3 75	3 70	3 90	3 90	4 20	4 40
Stove	3 50	3 90	3 90	4 15	4 15	4 50	4 75
Chestnut	3 00	3 40	3 65	3 90	4 05	4 40	4 65

It is evident to those who are well informed that all coal was not sold at so low a price during January as the L. & W.-B. Co's circular of January 19th would intimate, for figures furnished by two prominent individual concerns doing a very large tonnage show: $3.34 for Broken, $3.36 for Egg, $3.66 for Stove and $3.35 for Chestnut as the net price average (f. o. b.) at loading ports during the month. That the talk of "combine" did not benefit prices to any great extent during February, is noted from the fact that the averages of the concerns referred to were $3.30 for Broken, $3.39 for Egg, $3.63 for Stove and $3.21 for Chestnut during the month; while in March the rates had reached but $3.44 for Broken, $3.53 for Egg, $3.72 for Stove and $3.37 for Chestnut. The large production of Anthracite coal during the first quarter of the year, together with the low prices gave the retailers an excellent chance to load up with coal on most favorable terms.

The P. & R. contracts with the individual operators dated from March 15th as a rule, though some of the shippers began working under the new basis of 60 per cent. of the tide-water price earlier in the month. Following is the basis price on which this arrangement was carried out during the year:—

	Broken.	Egg.	Stove.	Chestnut.
March	$\$3.43$	$\$3.53$	$\$3.69$	$\$3.30$
April	3.46^5	3.57	3.70	3.21
May	3.51	3.60	3.79^4	3.58^7
June	3.62	3.74	4.00	3.80
July	3.57^5	3.82^5	4.08^7	3.89
August	3.61^7	4.02^9	4.33^9	4.09^8
September	3.65^8	4.12^6	4.42^2	4.19^8
October	3.71	4.19^2	4.58^9	4.46^1
November	3.66^7	4.21	4.57^4	4.38^2
December	3.68	4.19	4.56^1	4.45^8
October average	3.71	4.19^2	4.58^9	4.46^1
March average	3.43	3.53	3.69	3.30
Gain	.28	$.66^2$	$.89^9$	1.16^1

Figuring the tonnage of the several sizes as 10 per cent. of Broken, 20 per cent. of Egg, 40 per cent. of Stove and 30 per cent. of Chestnut and noting the change in prices it will be seen that the average gain on the total production was $\$.86\frac{83}{100}$ per ton.

On the 40 per cent. transportation basis the carrying company did not realize the old rate of tolls ($1.75 per ton) until the month of October. The rate in March was equal to $\$1.40^6$; in April, $\$1.40^{14}$ per ton; in May, $\$1.46^{59}$ per ton; in June, $\$1.53^6$ per ton; in July, $\$1.53^6$ per ton; in August, $\$1.65^8$ per ton; in September,

$\$1.68^{5}$ per ton; in October, $\$1.75^{32}$ per ton. It is evident from this statement that the contracting individuals (as well as others) realized a far better price for their coal than would have been possible under other conditions and they paid an average rate of tolls far less than they had previously been paying. On September 1st, the *open rate* of tolls from the Anthracite regions to tide-water were advanced from $1.75 to $1.90 per ton. The result of the 40 per cent. basis did not realize this figure, however, and therefore during all the year the P. & R. Co. was bearing the brunt of the fray, in making a price for the others to realize and in paying its contractors for so many months too great a proportion of the price. Until the rate of tolls equalled the old rate of $1.75 the P. & R. RR. Co. was not in so good a position as in former years, except that on its own coal it had the benefit of the increased price; as an offset to any gain in this direction it may be said that it was forced to hold back its own tonnage because of the increased tonnage delivered to it by the contractors above alluded to.

One result which is to be noted is what may be termed the equalizing of the values; the market price for Chestnut is nearly the same as that of Stove. The middle interest or commission man does not seem to have been eliminated to the extent outlined at the beginning of last year, or else the buyer gets the benefit of the commission; in proof of this one may note the margin between the circular price and the actual realization. For this reason, if for no other, one must take with considerable allowance the statements made as to the gains of 1892.

DETAILS OF ANTHRACITE TONNAGES.

Philadelphia & Reading Companies.

Fiscal years ending Nov. 30.	1889.	1890.	1891.	1892.
Coal carried by the RR. Co.	9,313,579	9,966,859	12,013,175	....
Production of the Coal & Iron Co.	6,057,101	6,781,704	7,574,666	....
Production of leased lands	557,026	....	....	....
Bituminous carried	1,243,011	1,638,465	1,855,712	....

Pennsylvania Railroad Company.

Traffic originating on company's lines;

	1889.	1890.	1891.	1892.
North and West Branch*	1,587,669	1,463,752	1,493,767	1,474,211
Shamokin Division*	764,028	792,957	1,172,093	1,371,442
Summit Branch*	613,223	625,884	286,787	689,186
S., H. & W.-B. RR.*	438,706	414,591	469,681	574,007
Other points*	108,894	155,320	188,351	236,352

Pennsylvania RR.—Belvidere Division.

	1889.	1890.	1891.	1892.
Received from Lehigh region	1,338,977	1,370,624	1.443,370	1,041,646
Received from Wyoming region	409,202	326,634	364,975	216,101
Distributed to Trenton	139,908	117,622	116,977	73,096
Distributed to South Amboy	231,289	299,387	190,885	58,279
Distributed to local consumption	1,162,503	1,165,121	1,239,761	1,008,884
Distributed to Company use	214,388	232,749	260,701	117,485

All tonnages in connection with Anthracite are in gross tons of 2,240 lbs., except the P. RR. tonnage marked thus*.

The loss on Bel. Del. division is due to the fact that "individual" coal formerly sent from Wyoming and Lehigh districts by roads to this line, for distribution in New Jersey and at tide, went over the P. & R. system during 1892.

Lehigh Valley Railroad Co.				
Coal carried, fiscal years ending Nov. 30	8,323,594	8,487,182	10,332,954	10,559,228
Output L. V. Coal Co's mines	1,594,784	1,464,509	1,385,463	1,454,262
Output of lessees under L. V. C. Co	2,280,751	2,499,562	3,247,627	3,096,271
Delaware, Lackawanna & Western RR. Co.				
Coal carried—calendar years	5,230,000	5,792,767	6,198,049	6,529,649
Delaware & Hudson Canal Co.				
Coal carried—calendar years	4,855,981	4,915,376	5,502,813	6,225,295
Production of mines of the company	3,819,045	3,706,148	3,973,286	4,396,858
Pennsylvania Coal Co.				
Coal production—calendar years	1,308,709	1,421,581	1,692,419	1,963,403
N. Y., L. E. & W. RR. Co.				
Coal production—calendar years	954,283	1,029,777	1,204,271	1,388,822
Central RR. of N. J.				
Coal carried—calendar year	6,081,060	5,941,622	6,200,890	5,569,622
From Wyoming region	3,014,517	2,938,535	3,309,095	3,085,188
From Upper Lehigh region	583,123	542,160	475,829	472,952
From Cross Creek region	599,508	541,038	448,061	16,316
From Beaver Meadow region	533,485	592,086	632,312	668,179
From Schuylkill region	64,885	2,579	1,228	9,326
From Mauch Chunk region	1,238,994	1,266,454	1,274,066	1,290,813
From connecting roads	46,554	58,770	60,299	26,848
Total	6,081,066	5,941,622	6,200,890	5,569,622
Lehigh & Wilkes-Barre Coal Co	2,205,088	2,166,413	2,521,220	2,712,642
Lehigh Coal & Navigation Co	1,182,420	1,272,514	1,262,838	1,293,662

MARKETS FOR ANTHRACITE.

The following shows the distribution of tonnage referred to:

	1888.	1889.	1890.	1891.
To Penn., New York and N. J.	23,053,581	22,314,331	22,307,170	24,732,753
To New England	6,082,440	5,407,357	5,402,156	6,187,327
To the Western States	5,039,568	4,922,076	5,218,616	6,249,186
To the South	1,969,829	1,613,120	1,641,258	1,826,198
To the Pacific Ocean	6,930	20,900	11,100	15,000
To the Dominion of Canada	1,956,405	1,094,736	1,226,839	1,393,922
To Foreign Ports	36,965	35,190	48,036	43,950
Total gross tons	38,145,718	35,407,710	35,855,175	40,448,336

The points where the Anthracite is marketed are clearly shown in this statement; some 76.45 per cent. goes to the New England and Middle States; no matter what the sum total of the output may be, this portion of the country continues to take its proportion.

THE QUANTITY OF ANTHRACITE AVAILABLE.

Mr. J. S. Harris, President of the Lehigh Coal & Navigation Co., in an elaborate article prepared last year, had something of interest to say on this topic. We quote the following:

"After the coal has been hoisted from the mine, a large percentage is destroyed for practical purposes in the process of breaking and screening it into sizes suitable for marketing, which two operations are technically termed 'preparing' the coal. These operations result in reducing a large proportion of the coal to sizes too fine for the market, the percentage of waste from this source varying very greatly, being comparatively small where the coal is tough and the best appliances for breaking are used, and large where the coal is friable and the breaking machinery is unsuitable. On the whole, the average waste in 'preparation' in the past has not fallen much short of twenty per cent. of the coal hoisted from the collieries. This has been much diminished of late years chiefly by the utilization of the smaller sizes of coal. This economy has progressed so far that whereas not more than ten years ago most of the coal was thrown away that was of sizes smaller than Pea coal, which corresponds in size to an ordinary chestnut, there is now a general marketing of all sizes of coal down to 'No. 2 Buckwheat,' which is about the size of grains of Indian corn. This is an enormous saving, for these sizes, which were wasted ten years ago, amount at some collieries to more than twenty per cent. of the whole production.

"And this process of rescuing fuel from the waste heaps is destined to go much further, in the more general use of the finer particles of coal, whether by improved appliances for burning the smaller coals, or by combining them into larger pieces by pressure after the admixture of some adhesive substance, or by teaching the consumer that much of that which he now rejects because of its unsightly appearance is fuel of excellent quality, as, for instance, that which is called Lehigh 'bony' coal, and which is discredited on account of dull streaks running through it, is known locally, and has been proved by chemical analysis, to be exceptionally pure coal, capable of producing as good results as that which is most lustrous. On the whole, it may not be going too far to suppose that improved methods of mining and of preparing the coal, and the increased utilization of the coal waste, may enable us to use as fuel one-half of the coal now remaining, so that we may assume that there are still 5,960,700,000 tons of Anthracite available before the beds shall be wholly exhausted.

"This is perhaps an extreme estimate. It is certainly much larger than the one I made in 1880, when it was my duty to study this subject in connection with a report on the Reading coal lands. But most of the improved and more conservative methods of mining, preparing and burning coal that justify the present estimate had not then come into use, and that estimate was intentionally conservative, while this one is intentionally liberal. It is likely that under favorable circumstances the mining of the next twenty years may realize a larger percentage than one-half of the coal in the ground, and the enhanced price may in the future act as an extraordinary inducement to economy in mining; so that results of which we now have no conception may be realized. All that it is safe to say in regard to any prediction on this subject is that it will probably be falsified by the event.

I can only remark now that I cannot conjecture whether this one is more likely to err on the side of excess or of deficiency.

"The time that will elapse before the total exhaustion of the Anthracite supply depends, of course, on the rate at which it is used. We have, as before stated, reached an annual consumption of 40,000,000 tons, and this consumption has been for some years increasing at the rate of four per cent. per annum. But it is not likely that this rate of increase will long continue. The whole coal field is so well supplied with collieries, and some parts of it are now so near their probable maximum rate of yield, that it may be assumed that the annual output will never be increased more than fifty per cent. above the present amount. If the limit of annual product is placed at 60,000,000 tons, we should have coal at this average rate for about 100 years, though this period may be somewhat prolonged by the diminution of the output, as parts of the field cease altogether to produce."

OREGON.

In spite of the reports of many and large discoveries of coal in this State the practical operations at present are confined to the mines of the Oregon Coal & Navigation Co., located at Marshfield in Coos County. At no time within the past ten years has its product been in excess of 75,000 tons per annum, in fact within the last year or two its output has only been in the neighborhood of about 50,000 tons annually; the coal is of fair quality for a Pacific coast coal and it finds a market usually at San Fransisco. The eleventh census covering the year 1889 gave an output of 64,359 tons of 2,000 lbs.; in 1890 the product is said to have been 61,514 tons, it dropped off to 51,826 tons in 1891, and probably was not quite as much in the past year, but up to the time of going to press the exact figures had not been received.

Coal found at the northeast end of Coos Bay, and called the Glasgow, showed by analysis:—Fixed carbon, 47.23; Volatile matter, 42.17; Water, 2.30; Ash, 8.25; Sulphur, .60. The Dunham coal, half way between Coos Bay and Coquille River, showed: Fixed carbon, 44.50; Volatile matter, 41.00; Water, 11.00; Ash, 3.00; Sulphur, .45. Coal found at John Day River, showed:—Fixed carbon, 51.90; Volatile matter, 37.20; Water, 4.00; Ash, 7.26; Sulphur, .60. The Nehalem coal shows:—Fixed carbon, 45.17; Volatile matter, 37.83; Ash, 9: Water, 8.

INDIANA.

Late details are not available; a statement shows the total production in 1891 to be 2,973,474 short tons, spot value, $3,070,918. Compared with the output of 1890, the product shows a decrease of 332,463 short tons and a loss of $188,315. The decreased output is said to have been largely due to three months strike in the Brazil regions, but whether this would account for so great a falling off is to be doubted. The highest average price obtained was in Dubois County and the lowest Warrick County. The general average for the State was $1.03 per ton, an advance over that of 1890 of 4 cents per ton. In Pike County 8,688 tons were converted into coke.

Mine Inspector McQuade reports that during the fiscal year ending October 31st, 1891, the tonnage of coal produced from all sources was 3,819,600—the largest ever reported. For convenience the State was divided into northern and southern mine inspection districts between State Inspector McQuade and Assistant Inspector Lackey. In the northern district 4,615 miners were employed in 96 mines, divided among the counties as follows: Clay, 2,800 men in 41 mines; Vigo, 500 men in fifteen mines; Owen, 200 men in eight mines; Vermillion, 450 men in 11 mines; Parke, 600 men in 12 mines; Warren, 35 men in five mines; Fountain, 30 men in four mines. In the southern district the total is 2,217 in 45 mines, the division being as follows among the counties: Daviess, 374 in nine mines; Gibson, 25 in one mine; Green, 437 in four mines; Knox, 76 in three mines; Perry, 82 in two mines; Pike, 269 men in four mines; Sullivan, 582 men in 11 mines; Spencer, 17 men in one mine; Vanderburg, 247 men in five mines; Warrick, 120 men in five mines. The list does not include the small mines in which less than ten men are employed.

The growth in the use of natural gas is affecting the coal industry adversely; the coal operators find a strong opponent. The area of the gas field of Indiana is very much larger than that of any other developed at this time. It embraces the counties of Grant, Howard, Tipton, Hamilton, Madison, Hancock, Delaware, Blackford, Henry and Rush. Adjoining these, gas has been found in paying quantities in parts of Marion, Shelby, Decatur, Franklin, Dearborn, Fayette, Wayne, Randolph and Jay counties. This constitutes the main gas belt of the State, and is practically continuous. Inside of this belt but very few wells have been drilled that have not furnished more or less gas.

The mines in Clay County produce the largest amount, their total annual tonnage being something like a million tons; in this county is the celebrated Brazil Block coal district. The outlets to market are the Terre Haute & Indianapolis: Cleveland, Cincinnati, Chicago & St. Louis; Chicago & Eastern Illinois; Louisville, New Albany & Chicago and the Chicago & Indiana Coal RR's. Vigo County is the second in point of coal production and the coal finds an outlet over the Chicago & Eastern Illinois, the Chicago & Indiana, the Evansville & Terre Haute, and the Terre Haute & Indianapolis RR's. Parke County is the third in rank in the amount of coal produced, which finds an outlet to market over the Chicago & Indiana Coal RR. The total amount of coal mined in the other twelve counties in the State does not aggregate a million tons per annum. Daviess County does perhaps one hundred and fifty thousand tons; the coal goes out over the O. & M. and the E. & I. RR's; Greene County does perhaps one hundred and seventy-five thousand tons and the coal goes to market over the I. & V. RR.; Sullivan County has an output of two hundred thousand tons and has for its railway facilities the T., H. & I. and the I. & I. S. RR's.; Vermillion County does perhaps two hundred and twenty thousand tons and is served by the C. & E. I. RR.; Vanderburg County is credited with two hundred thousand tons per annum, and the railways are the E. & T. H., L. & N., and the P., D. & E.; the other coal producing counties are Dubois, Fountain, Perry, Pike, Spencer and Warrick.

ILLINOIS.

The annual compilation of statistics of coal production in Illinois, prepared by the State Bureau of Labor Statistics, under the management of Col. J. S. Lord, presents the following summaries as to the number of mines; the output divided into lump and other grades:—

Years ending July 1.	Mines.	Lump.	Other.
1882	704	9,115,563	1,901,506
1883	639	10,030,991	2,092,465
1884	741	10,101,005	2,107,070
1885	778	9,791,874	2,042,585
1886	787	9,246,435	1,928,806
1887	801	10,278,890	2,144,176
1888	822	11,855,188	2,472,993
1889	854	11,597,963	2,419,335
1890	936	12,638,364	2,636,363
1891	918	12,960,224	2,700,474
1892	841	14,730,963	2,868,687

This statement illustrates very forcibly the growth of coal mining in Illinois, and suggests the importance which this industry is destined to attain in the future. It is a feature of the present situation that a number of enterprises are now on foot contemplating further development of the more prolific seams and the tendency to an enlargement of capacity among existing mines in favored localities.

Some of the more important items are compared for the two years last named:—

	1891.	1892.
Tons of lump coal mined by hand	9,961,159	11,600,610
Tons mined by hand and paid for by the day	1,216,258	2,630,831
Tons of all grades mined by machines	3,027,305	3,871,939
Lump coal mined by machines	2,423,080	3,108,253
Tons of other grades	604,225	763,704

Below are numerous details in regard to operations:—

	1891.	1892.
Counties in which coal has been mined	57	55
Mines and openings of all kinds	918	841
Tons of coal of all grades mined	15,660,698	17,862,276
Tons of lump coal	12,960,224	14,730,963
Tons of other grades	2,700,474	3,131,313
Acres worked out	2,802	2,996
Employees of all kinds	32,951	33,632
Miners	26,059	25,321
Other employees, including boys	6,892	8,311
Boys over 14 years of age, under ground.	995	953
Days of active operations	216	217
Home value of total product	$14,237,074	$16,243,645
Home value of lump coal	13,068,854	15,158,430
Home value of other grades	1,168,220	1,085,215
Value of lump coal per ton at the mines.	1.01	1.03
Value of other grades per ton at the mines.	.43	.35
Price paid per ton for hand-mining	.71	.67
Tons of lump coal mined by hand	9,961,159	11,600,610
Tons mined by hand and paid for by the day	1,216,258	2,630,851
Mining machines in use	241	300
Tons of all grades mined by machines	3,027,305	3,871,939
Tons of lump coal mined by machines	2,423,080	3,108,235
Tons of other grades mined by machines.	604,225	763,704
Kegs of powder used	261,392	299,467

Men killed, 57; wives made widows, 25; children made fatherless, 63; men injured so as to lose time, 418. Tons of coal mined for each life lost, 313,373; tons of coal mined for each man injured, 42,733; employees for each life lost, 590; employees for each man injured, 80. New mines opened including old mines reopened, 61; mines closed or abandoned, 138—all for fiscal year 1892.

Distributed among districts the gain in product in fiscal year '92, as compared with preceding, was as follows:—In the first district, including the Streator, Braidwood and La Salle fields, 375,151 tons; in the second district, embracing the Spring Valley and the Rock Island regions, 293,342 tons; in the third district, including Peoria and Danville fields, 466,947 tons, and in the fifth district, lying in the southern extremity, 459,360 tons. Five counties produced over 1,000,000 tons each, as follows:—St. Clair, 1,847,235; Macoupin, 1,823,136; La Salle, 1,544,311; Grundy, 1,175,064; Sangamon, 1,091,014. Fifty-two collieries produced over 100,000 tons each during the year. Twelve mines each produced 200,000 tons or more during the year, and twenty delivered an average of over 200,000 tons. The largest output from one shaft was 306,865 tons, which amount was hoisted from the Consolidated Coal Co's No. 6 shaft, Staunton.

The output will be immensely increased in the next year, for the last six months of 1892 and the first quarter of 1893 have shown that coal of all kinds was in great demand.

TEXAS.

Quoting from the third annual report of the geological survey of Texas, Prof. E. T. Dumble, F. G. S. A., State geologist, we find it there stated: "I have compared our Texas lignites with those of Germany and Austria, and find that we have representatives of the various classes mentioned I have personally examined the various classes of brown coal as they occur in the deposits, as they come from the mine, and as they are used in their various applications, and I have compared them with our Texas lignites, both in their physical character and chemical composition, with the result as stated. I have submitted average specimens of our Texas brown coals to the highest authorities on this subject in Germany and Austria, and they, without exception, confirm my statement, and unite in pronouncing the Texas brown coals of excellent quality, fully equal to the Bohemian, and equally suitable for use for all domestic, industrial and metallurgical purposes. I have therefore the pleasure of reiterating the statement made several times already, and each time supported by stronger evidence, that Texas has in the immense deposits of brown coal a cheap fuel which can be used for every purpose for which fuel is needed. It should, however, be plainly understood in the beginning, that the brown coals of Texas will be found to differ very widely in quality, and it will require analysis of each deposit to tell with certainty for what purpose it is best adapted. Deposits will be found containing too large a percentage of ash, and some perhaps too large a percentage of sulphur, to be of value as fuel, although other uses may be found for them. Those that are suited for briquetting without bond may not serve equally well for other purposes, and some of the varieties of brown coal will not form a briquette at all by the dry method. It is impossible, with detached basins of brown coal, formed under somewhat diverse conditions and stretching across an area seven hundred miles in length, that all should be equally good. That there is an abundance of material that is of a most excellent quality is shown by the examinations and analysis already made by the survey of deposits and specimens from all portions of the lignite belt, and yet other of these analysis also prove the existence of deposits which are comparatively worthless. Therefore, in any undertaking having brown coal as its basis of supply, either as fuel or raw material for manufacturing purposes, an accurate knowledge of the material should be obtained before operations are begun."

We repeat the analyses from the preceding edition of this work:—

Strawn coal shows:—40.21 Volatile Matter; 43.54 Fixed Carbon; 9.58 Ash; 6.67 Moisture and 2.34 Sulphur.

Stevens coal shows:—Moisture, 10.405; Volatile Matter, 35.940; Fixed Carbon, 49.460; Ash, 4.195; Sulphur, 1.535.

Eagle Pass coal shows:—Moisture, 3.675 to 6.870; Volatile Matter, 35.551 to 39.420; Fixed Carbon, 41.700 to 47.231; Ash, 9.240 to 15.205; Sulphur, 9.810 to 1.100.

Laredo coal shows:—Moisture, 2.50; Volatile Matter, 51.05; Fixed Carbon, 39.10; Ash, 7.35; Sulphur, 1.50.

Bowie County coal shows:—Moisture, 10.67; Volatile Matter, 76.35; Fixed Carbon, 11.05; Ash, 1.45; Sulphur, 0.35.

The Eleventh Census gives an output of 128,216 tons of 2,000 lbs. The tonnage last year was perhaps 250,000 tons; there are continued reports of coal being found in this State and when the necessity arises for it from the growth of manufactures it will be developed in proper proportion. At present large quantities of coal are received from the Indian Territory and other points because of its superior quality as compared with that found locally.

ALABAMA.

An esteemed correspondent sends us the following statement in regard to the coal tonnage in Alabama in the past year:—

Pratt Mines—total coal output, including coal coked	1,226,104 tons.
Pratt Mines—total coke production	254,451 tons.
Blue Creek Mines—total coal production	601,346 tons.
Blue Creek Mines—total coke made	381,000 tons.
Blocton Mines—total coal output	662,225 tons.
Gurnee Mines—total coal output	116,540 tons.
Mary Lee Mines—total coal output	145,000 tons.
Mary Lee mines—total coke made	37,000 tons.
Dora Coal Co.—total coal output	25,500 tons.
Corona Coal & Coke Co.—coal output	140,000 tons.
Corona Coal & Coke Co.—coke made	15,000 tons.

The total coal output is put at 5,274,000 tons; this includes the coal used to make coke. The coke made is said to have been 1,220,000 tons.

The Tennessee C., I. & RR. Co., at its Pratt, Blue Creek, Blocton and Gurnee mines mined 2,606,215 tons, and the coke made (from a portion of this coal) was 704,238 tons. The Sloss Co. is the next largest producer of coal and coke.

In the past year the Tennessee C., I. & RR. Co. absorbed the De Bardeleban C. & I. Co. property. An official statement made at the time is as follows:

"The Tennessee Coal & Iron Co. was chartered in 1852 as the Sewanee Mining Co. In 1857 it was changed to the Tennessee Coal & RR. Co., and continued operating under that name until 1881, when it absorbed the Sewanee Furnace Co. A year later it absorbed the Southern States Iron & Land Co., (Limited,) and then its name was changed to its present title, the Tennessee Coal, Iron & RR. Co. Four years later it absorbed the Pratt Coal & Iron Co. and the Alice Furnace Co. At present it owns 208,000 acres of coal and iron land, chiefly in Alabama, and has ten blast furnaces and 1,950 coke ovens. Its daily output is 1,000 tons of pig iron and 6,500 tons of coal.

"The De Bardeleban Co. represents the consolidation of a half dozen different corporations. It at first absorbed the Bessemer Iron & Steel Co., next the Little Belle, and then the Eureka and the Henryellen. All this absorption has taken place within the last four years. This company owns 160,000 acres of coal and iron lands in the Warrior and Cahaba coal basins of Alabama. It has seven blast furnaces and 1,040 coke ovens. Its daily output is 700 tons of pig iron and 3,000 tons of coal.

"This company's lands are interlocked and interwoven with those of the Tennesse Coal & Iron Co. In fact, it may be said that the two companies have been rivals in the fullest sense of the word. They mined their coal in practically the same territory, made their iron and coke under similar conditions and with the same advantages, sold their output in the same markets and the main advantages of a union would be, of course, to minimize the expense and cost of production, and it was, from a strictly business point of view, the logic of the situation.

"The two great coal basins of Alabama are the Warrior and Cahaba. They are separated by the Red Mountain, which contains the iron ore from which these companies draw their supply. Over sixty miles of this mountain is now owned by these companies. The Warrior coal field, carrying the coking coal, is underlaid by the Pratt and Blue Creek seams, the Pratt being about 4½ feet in thickness and the Blue Creek 8 feet minimum. The Cahaba carries the domestic and steam coals. By this union the new companies acquire about forty-five miles of the Cahaba and about fifty miles of the Warrior fields."

The coal producing companies are reaching out for the Mississippi River trade and export trade in general; terminal facilities and shutes of large capacity have been erected by the railroad companies at Pensacola, Fla., Mobile, Ala., Greenville, Miss., and at New Orleans; many have coal barges to transport coal on the Mississippi River, from Greenville to the sugar plantations, New Orleans and accessible points below that city. The coal shipped from the Virginia & Alabama Coal Co's mines in every respect resembles that shipped from the Kanawha River section; it has been sold in New Orleans and in fact all Southern markets for the last six years in active competition with coal from Pittsburgh and at the same price it gives entire satisfaction.

In the last fiscal year, the *exports* from Pensacola are put at 16,709 tons, and from Mobile at 4,034 tons; the figures of the coastwise trade are not accessible; there will be an increase in both items during the next fiscal year. The shipments to New Orleans by the L. & N. RR. are given in their statement elsewhere printed.

An important transaction, reported to have recently taken place, is that the Montgomery, Tuskaloosa and Memphis Ry. Co. has purchased of the Tuskaloosa Coal, Iron and Land Co. the charter, roadbed and all franchises of the Tuscaloosa Northern Ry., the Tuscaloosa Belt Ry. and a valuable body of coal and other lands, fifteen acres of the latter being river frontage. By the terms of the transfer the Northern, which has been graded six miles, is to be immediately completed, thus connecting the Warrior coal fields with deep water on the Warrior river. The mines are to be opened along the line of the road, and coal will be transported to Mobile and New Orleans by barges. This will greatly lessen the cost of coal along the entire Gulf coast, if the intentions of the parties interested are carried out.

KENTUCKY.

Mr. C. J. Norwood, Mine Inspector, reports that the following was the output of Bituminous coal, in tons of 2,000 pounds, for the six months ending December 31, 1892. Of the output given, 122,255 bushels were estimated. Reports have not been received from one mine for two months and from another for one month, and for these no estimates were made; the amount of coal mined at those mines for the missing months was small, if any at all.

	Western District.	Southeastern District.	Northwest'n District.	Total.
Lump	376,719	175,837	106,761	659,317
Nut	106,881	55,359	21,586	183,826
Mixed lump and nut	161,325	56,338	10,203	227,866
Run of mine	146,676	112,197	47,633	306,506
Pea	21,514	18,951	6,599	47,064
Slack	87,373	33,956	18,556	139,885
Miscellaneous	33,512	39,256	4,213	75,381
Total net tons	934,000	491,894	215,551	1,641,445
Mines	58	36	17	111

CANNEL output in six months was: 14,102 tons, Johnson County; 7,305 tons, Hancock County; 5,223 tons, Carter County; and 3,177 tons from four mines in other counties.

Output for calendar year 1892 was:—

Sizes.	Western District.	Southeastern District.	Northwest'n District.	Total.
Lump	684,459	287,947	204,871	1,177,258
Nut	194,716	93,636	41,145	329,496
Mixed lump and nut	342,135	127,853	16,999	487,008
Run of mine	247,327	194,633	95,625	537,586
Pea	38,836	28,282	11,696	78,814
Slack	139,999	54,420	33,501	227,921
Miscellaneous	72,317	53,226	8,799	132,742
Total net tons	1,719,809	839,997	412,618	2,972,425
Mines	62	39	18	119

CANNEL for the year: 27,450 tons from Johnson County; 13,450 tons Hancock County; 8,760 tons Carter County; and 4,112 tons from four mines in as many counties.

Production of Coke for the calendar year 1892:—

Hopkins County, 1 company	31,455.95 tons.
Bell County, 2 companies	5,404.25 tons.

Figures for the number of employees during the calendar year 1892 have not yet been received—the operators are, many of them, behind with their returns.

The number of persons employed at the mines during the fiscal year ending June 30, 1892, was as follows:—

At the Bituminous mines	Maximum......8,646	Average......6,625
At the Cannel mines	Maximum...... 426	Average...... 353

We give below a comparative table of output in preceding years:—

Size.	Bushels 1890.	Bushels. 1891.
Lump	26,901,334	31,682,398
Nut	7,440,337	8,973,135
Run of mine	10.470,525	10,529,519
Slack	3,916,049	4.685,909
Mixed lump and nut	9,531,406	12,131,445
Pea	2,144,613	2,302,932
Miscellaneous	1,674.345	1,671,717
Totals	62,078,609	71,977,055
Net tons	2,483,144	2,879,082
Cannel coal, net tons	49,382	42,871
Coke, net tons	20,711	32,694

One of the largest producers in the State is the St. Bernard Coal Co., of Earlington, Hopkins County, and below is a statement of their output from the beginning of operations:—

Year.	Coal.	Year.	Coal.	Coke.
1871	31,700	1882	256,584	.. ...
1872	91,757	1883	315,208	......
1873	134,201	1884	285,573	......
1874	139,597	1885	303,860	......
1875	153,678	1886	320,689	......
1876	121,963	1887	353,277	202
1877	177,349	1888	392,272	6,352
1878	149,661	1889	355,863	7,444
1879	173,234	1890	375,867	11,136
1880	200,073	1891	428,029	22,169
1881	310,689	1892	469,100	31,452

NEW MEXICO.

Hon. L. Bradford Prince says in his annual report: "Coal mining continues to be one of the most important industries of the Territory. It is carried on very extensively at Blossburg, near Raton; at Amargo, in Rio Arriba County; at Gallup and at Cerrillos, and to a smaller extent in a number of other localities. The mines at Carthage, which have been extensively worked for many years, are almost entirely closed and many buildings there have been moved to Cerrillos. The latter has become the most important point in this business in the Southwest. The owners of the great coal tracts in the vicinity have combined all interests and in connection with the Atchison, Topeka and Santa Fe RR. Co. are building many miles of branch railroad to connect the various mines with the main line. There is every prospect that the output of their locality in the year 1893 will be far larger than has ever been known in any part of the Territory before.

Mr. J. C. Spears, recently appointed coal-mine inspector by the President, furnishes the following information with regard to the mines at Gallup. These, are situated near the Arizona line, and the shipments are nearly all to the Pacific slope. "In 1891 at all the Gallup mines combined (eight mines) 12,925 railroad cars of coal were produced, each car containing 20 tons, making a total of 258,500 tons. The output would have been much larger had the mines been worked steadily, but unfortunately three of the Aztec Coal Co's mines were closed on account of the strikes, from May 9, 1891, to about the last of July, 1891. For the same cause the Gallup Coal Co's mines were closed one month and the Black Diamond Coal Co's mines were closed one month. I may add that most of the mines did not work more than three-quarter time from January 1, 1891, up to the date of the strike, and about the same ratio after the strike was settled in 1891.

From January 1, 1892, down to and including July 31, 1892, there were shipped from all the mines combined 7,810 railroad cars of 20 tons each, making a total of 156,200 tons. Out of the 7,810 cars produced, the Atlantic & Pacific RR. bought 6,061 cars; the remaining 1,749 sold in northern and southern California and Albuquerque and along the line of the Atlantic & Pacific RR.

The figures given do not include coal consumed in the town of Gallup or at the mines, but we can safely count that at 1,000 tons per month more. I will further state that the mines have only worked about 3½ days per week, on an average, since January 1, 1892, with the exception of the Caledonia mine, which has averaged about 4 days per week since January 1, 1892. The reason assigned for this slackness in work is sharp competition with British Columbia coal in California and the high freight rates from Gallup to California.

Coal is sold to the Atlantic & Pacific RR. Co. at the mine at $1.38 per ton. Commercial coal in Gallup is delivered at $3 per ton. Miners receive 70 cents per ton for mining. Day's wages around the mines are from $2 to $3 per day.

There has been no new mine opened in 1892. On January 15, 1892, the Gallup Coal Co., the Black Diamond Coal Co. and the Aztec Coal Co. consolidated, and are now known as the Crescent Coal Co., and they control all the mines at Gallup but the Caledonia, Beacon Hill and Eureka.

INDIAN TERRITORY.

Output by Missouri Pacific companies as reported was:

	1888.	1889.	1890.	1891.	1892.
Atoka C. & M. Co.	326,896	295,761	256,983	288,686	250,297
Osage C. & M. Co.	......	......	348,478	386,686	272,100

The Choctaw Coal & Ry. Co. has proceeded with its developments in the past year. It owns rich coal lands in the Choctaw Nation in the vicinity of McAlester and the Missouri, Kansas & Texas RR. The leases have ninety-nine years to run, and are regarded as exceedingly valuable, owing to the fact that the coal is said to be the best yet found west of the Mississippi. It is said that the shipments in 1891 were 100,000 tons and 229,744 tons in 1892. Below are analyses of the coals found in this coal field.

	Mitchell.	Grady.	McKinney.	Krebs.	Lehigh.
Water	1.058	1.792	1.709	1.804	4.323
Volatile matter	19.032	40.207	38.668	37.171	40.507
Fixed Carbon	71.736	51.785	51.482	53.404	44.472
Sulphur	.649	1.333	1.006	.896	2.598
Ash	7.525	4.883	7.135	6.725	8.100

WEST VIRGINIA.

The reports of the Mine Inspectors are for years ending June 30th.

	1890.		1891.	
COUNTY.	COAL.	COKE.	COAL.	COKE.
Mason	116,598	....	123,323	....
Putnam	156,856	....	154,692	....
Kanawha	1,209,386	5,637	1,175,371	2,311
Fayette	1,737,617	326,984	1,564,579	680,216
Mercer	1,210,723	254,780	1,175,141	88,297
McDowell	704,871	336,259	1,100,882	194,390
Harrison	113,268	6,214	142,960	5,590
Taylor	83,851	8,458	74,000	7,756
Ohio	80,738	....	82,534	....
Preston	134,467	60,541	82,089	19,773
Marion	722,594	165,482	903,896	227,291
Monongalia	46,100	4,900	70,062	13,517
Mineral	623,067	473,862	166,893	35,046
Marshall	118,242	....	....	....
Brooke	33,999	....	....	....
Tucker	180,053	69,162	396,320	72,998
Total	7,281,430	1,238,418	7,777,570	1,313,439

Coal 2,240 lbs, coke 2,000 lbs to the ton.

In 1892—Wayne County is credited with an output of 55,920 tons included in above total for that year.

The several important districts are the Elk Garden, the New River, the Pocahontas and the Upper Monongahela. The former is in Mineral and Tucker Counties; the New River is in Fayette and Kanawha Counties, the Pocahontas in Mercer and McDowell, while the Upper Monongahela region, whose rapid development is attracting the attention of capitalists just now, extends from the Pennsylvania state line through the counties of Monongalia, Marion and Harrison.

THE KANAWHA SHIPMENTS.

Statement showing the number of tons of coal shipped from the Great Kanawha Valley, below Kanawha Falls, for the several years named, reported by Col. W. P. Craighill, U. S. A.

Net tons year ending June 30th.	By river.	By railroad.	Total.
1881	385,148	265,266	650,414
1883	614,818	531,610	1,146,428
1884	736,843	482,367	1,219,210
1885	712,493	518,889	1,231,382
1886	714,465	558,150	1,272,615
1887	929,335	766,436	1,695,771
1888	804,025	838,507	1,642,532
1889	1,076,872	881,245	2,063,799
1890	966,462	1,097,337	1,958,117
1891	1,030,454	1,146,721	2,177,175
1892	1,171,511	1,233,764	2,305,275

In comparing the shipments by river and railroad the unfinished river improvement should not only be taken into account but also the fact that the railroad shipments include two roads, the Chesapeake & Ohio and the Kanawha & Michigan, carrying to eastern, western, northern and southern markets.

CHESAPEAKE & OHIO RAILWAY COAL TRADE.

This road carries the output from the collieries along its line, distant say from 365 to 399 miles west of Newport News, its tide-water loading port. The total of coal and coke carried has been—net tons:—

1887	1,663,381 tons.	1890	2,336,628 tons.
1888	1,823,514 tons.	1891	2,648,615 tons.
1889	1,886,698 tons.	1892, gross tons	2,754,187 tons.

In 1891, 1,250,306 tons of steam coal; 1,079,916 tons of Splint, Block and gas coal, and 318,393 tons of coke were shipped.

In 1892, 1,257,812 tons of steam coal; 1,207,161 tons gas, Splint, Block and Cannel coal, and 289,214 tons coke, were shipped.

THE ELK GARDEN DISTRICT.

In the Elk Garden district, on the upper Potomac, the development has been as stated below—gross tons:—

1887	449,011 tons.	1890	774,904 tons.
1888	564,397 tons.	1891	959,673 tons.
1889	576,047 tons.	1892	971,214 tons.

The Piedmont & Cumberland RR. gives a connection from this district to the Pennsylvania RR. system at Cumberland; over this line 420,974 tons were shipped in the year 1891 and 423,472 tons in 1892.

In his last annual message, Hon. A. B. Fleming says:—"No State in the Union is more favored in the extent and diversity of its mineral deposits than West Virginia. Her coal embraces all grades of Bituminous, steam, coking and gas coals of the highest qualities. The natural waterways, improved slackwater navigation, and increasing railroad facilities are important factors in the development of the resources of the State, which must soon be accorded a leading position in wealth and industrial prosperity."

DETAILS OF THE COAL AND COKE INDUSTRY.

YEARS.	Inside Miners.	Outside Laborers and Coke Workers.	Total Production Ton 2000 lbs.	COKE.	
				Coal Used.	Coke Produced.
1880	2,553	1,173	1,404,008	206,034	121,715
1881	3,063	1,407	1,803,984	272,163	164,058
1882	3,573	1,641	2,416,960	321,625	202,103
1883	4,338	1,956	3,142,234	360,664	225,803
1884	4,627	1,724	3,249,839	385,558	228,472
1885	5,486	1,806	3,369,062	415,533	260,571
1886	6,081	1,181	3,598,664	425,002	264,168
1887	7,023	1,582	4,936,820	698,327	442,031
1888	7,269	1,705	5,375,564	786,139	499,985
1889	7,764	1,882	5,405,173	562,739	360,716
1890	9,173	2,324	6,002,080	1,377,299	892,490
1891	10,434	2,589	8,155,202	1,899,122	1,238,418
1892	9,884	5,509	8,710,888	2,011,668	1,313,449

KANSAS.

The Inspector of Mines furnishes the following statement of the output of coal in this State:—

COUNTIES.	Output for 1890. Number of bushels.	Output for 1890. Per cent. of output of the State.	Output for 1891. Number of bushels.	Output for 1891. Per cent. of output of the State.
Bourbon	480,354	.60	500,000	.73
Chautauqua	37,000	.07	38,200	.06
Cherokee	19,338,189	30.85	22,428,277	32.50
Cloud	170,000	.30	176,000	.25
Coffey	430,000	.60	434,560	.63
Crawford	21,606,377	34.34	23,119,629	33.56
Ellsworth	125,000	.20	151,200	.22
Franklin	779,350	1.25	838,000	1.22
Labette	50,000	.08	62,000	.09
Leavenworth	6,676,070	10.60	7,479,406	10.60
Lincoln	165,000	.28	169,200	.24
Linn	787,336	1.30	1,359,374	2.00
Lyon	86,510	.13	87,343	.14
Mitchell	23,700	.03	26,000	.03
Nemaha	55,200	.06	57,000	.07
Osage	11,715,551	18.62	11,625,515	17.10
Republic	20,000	.03	26,410	.04
Russell	151,100	.28	160,000	.27
Shawnee	204,610	.38	205,000	.35
Totals	62,901,347	100.00	68,843,114	100.00

The output for 1890 is 62,901,347 bushels, an increase over 1889 of 9,082,198 bushels, by far the largest output ever reported for the State, and this, too, in spite of the fact that the preceding winter was an unusually poor one for the coal trade. However, the output for 1890 is below that of 1891 by 5,941,767 bushels. From the column of percentages, it will be seen that the output of coal for Kansas comes practically from four counties: Crawford, with 33.56 per cent. of the total output; Cherokee, with 32.50 per cent.; Osage, with 17.10 per cent., and Leavenworth, with 10.60 per cent. These counties, it will be noticed, produced in 1891 93.76 per cent. of all the coal mined in the State. In 1889 these same counties produced 93.69 per cent. of the total output. The relative position of these counties as to output is shown in the following table:—

	1889.	1891.
Crawford, per cent. of total output	39.30	33.56
Cherokee, per cent. of total output	24.50	32.50
Osage, per cent. of total output	18.44	17.10
Leavenworth, per cent. of total output	11.45	10.60
Totals	93.69	93.76

The annual output of coal in Kansas for the years 1885 to 1891, inclusive, is as follows:—

1885	36,001,427 bushels.
1886	34,750,000 bushels.
1887	39,251,985 bushels.
1888	42,500,000 bushels.
1889	53,819,149 bushels.
1890	62,901,347 bushels.
1891	68,843,114 bushels.

COLORADO.

Colorado in 1873 showed an output of but 69,977 tons of coal. In 1891, 3,512,632 tons, and in 1892, 3,771,234 tons.

PRODUCTION OF COAL BY COUNTIES:

Counties.	1891.	1892.	Incr'se.	Decr'se.
Arapahoe	1,273	654	....	619
Boulder	498,494	569,326	70,832	....
Dolores	3,475	3,475	....	....
El Paso	34,364	35,788	1,424	....
Fremont	545,789	497,382	....	48,407
Gunnison	261,350	198,483	....	62,867
Garfield	191,994	285,550	93,556	....
Huerfano	494,466	541,596	47,130	....
Jefferson	17,910	23,556	5,646	....
Las Animas	1,219,224	1,329,178	109,954	....
La Plata	72,471	89,612	17,141	....
Mesa	5,000	7,300	2,300	....
Montezuma	....	675	675	....
Park	52,626	87,949	35,323	....
Pitkin	91,642	77,526	....	14,116
Weld	22,554	13,184	....	9,370
Small mines not reported	....	10,000	10,000	....
Total	3,512,632	3,771,234	393,981	135,379

PRODUCTION OF COKE.

Counties.	1891.	1892.	Increase.
Las Animas	184,047	240,177	56,130
Gunnison	43,910	51,879	7,969
Pitkin	47,014	53,019	6,005
La Plata	5,548	10,000	4,452
Mesa	....	20	20
Total	280,519	355,095	74,576

COAL PRODUCTION FROM 1873 TO 1892.

Years.	Tons.	Years.	Tons.
1873	69,977	1883	1,220,593
1874	87,372	1884	1,130,024
1875	98,838	1885	1,398,796
1876	117,666	1886	1,436,211
1877	160,000	1887	1,791,735
1878	200,000	1888	2,185,477
1879	322,732	1889	2,400,629
1880	375,000	1890	3,075,781
1881	706,744	1891	3,512,612
1882	1,106,479	1892	3,771,234

Coal output for 1892 is 3,771,234 tons of 2,000 pounds; of this amount there has been shipped to Kansas, Nebraska, Texas, Utah, California and Montana, about 1,200,000 tons. The spot cash value of the production of coal at the mines is $6,222,536.10. The average number of persons employed at the mines during the year is 7,578. The average tonnage price paid to the miners for digging and loading the coal and timbering their place is 75 cents per ton of 2,400 pounds of "run of mine."

Colorado coal can be sold almost as far east as the Missouri River. This is true of Bituminous coal, the Anthracite is sold in Omaha. Nebraska and Kansas will always be in the main dependent upon the coal mines of the Rocky Mountains for their fuel supply. Some of this coal will be furnished by Wyoming and some by New Mexico, but the greater part of it will be obtained in Colorado. It is needless to say that the development of this industry has an important relation to the future prosperity of Colorado. It will give employment to thousands of miners, and it will require a great many men to handle the product after it is taken from the mines and before it reaches the consumer.

We also give below the tablé showing the annual coal and coke production at Elk Mountain—Crested Butte since 1884:

Year.	Coke No. Tons.	Bit. Coal No. Tons.	Anth. Coal No. Tons.
1884	16,790	30,220	17,550
1885	22,240	46,090	29,089
1886	31,850	54,200	17,890
1887	59,366	120,184	48,214
1888	42,730	102,332	42,094
1889	42,858	85,000	56,000
1890	47,900	105,868	51,936
1891	46,528	91,290	61,931
1892	53,644	90,285	76,425

During the past year, the Colorado Fuel Co., and the Colorado Coal & Iron Co. pooled their interests; the new concern is known as the Colorado Fuel & Iron Co. In its fuel department it owns and operates 16 mines, having a daily capacity of 12,000 tons of coal; 800 coke ovens with a capacity of 1,000 tons of coke; it also controls by contract the output of several other mines which it does not own, and is opening mines at Ruby and Coal Creek, and will make an addition of 500 ovens to its coking capacity.

The coal mines are located at Coal Creek canon, Berwind, New Castle, Rouse, Chandler Creek canon, El Moro, Sunshine, Robinson, Maitland, Sopris, Northern Colorado, Walsen, Santa Clara, Crested Butte, Rock Springs (Wyoming), Lennox.

Anthracite coals—Elk Mountain, Ruby.

Gas and smithing coals—El Moro, Sopris, Spring Gulch, Coal Basin.

Coke—Sopris, Crested Butte, Coal Basin, El Moro, Cardiff.

MONTANA.

Prof. O. C. Mortson states in a report on the coal of this State:—" A new coal field has been explored and is now being developed. It commences three miles south of Castle, crossing to and following the vicinity of Sixteen Mile Creek, a total distance of twenty miles. The coal vein varies in thickness from two to twelve feet. Among new companies operating are Messrs. Hensley, Rhoades & Co., and the Bozeman Coal Co.

" Twenty miles north of the vigorous city of Columbia Falls a vast coal field is now undergoing exploration and development. The coal is Bituminous, but it is not yet developed to reach a producing point for railroad shipment. The work done, however, so far shows that there are twenty veins of coal ranging from one to eighteen feet in thickness. The Parrot Smelting Co., of Butte, and the Northern International Improvement Co., of Columbia Falls, are among the largest owners of coal properties in this section.

"The analysis of the coal in the Flathead Valley is as follows: Fixed carbon, .47; Volatile matter, .42; Ash, .6; Moisture, .5.

The above analysis was made from coal thirty feet from the surface.

"From the best available sources, I estimate the coal production of Montana for 1891 to be about 582,000 short tons. For three years there is an average ratio of increase of between 13 and 14 per cent. as follows: 1889, 363,301 tons; 1890, 512,984 tons; 1891, 582,000 tons.

"The above amounts are exclusive of the coke product, which industry may be said to be in its infancy as yet."

Another report of the coal output in Montana is the following:

1883	19,795	1888	41.467
1884	80,376	1889	363,301
1885	86,440	1890	517,477
1886	49,846	1891	541,861
1887	10,202		

OHIO.

Mr. R. M. Haseltine, Chief Inspector, reports the following output in the calendar years:—

Counties.	Tons 1888.	Tons 1889.	Tons 1890.	Tons 1891.
Athens	1,336,698	1,466,328	1,420,280	1,374,320
Belmont	1,108,106	814,699	827,568	1,259,570
Carroll	355,092	430,995	420,078	205,521
Columbiana	466,191	628,041	541,851	664,569
Coshocton	167,903	156,341	146,837	205,793
Gallia	16,722	14,868	15,160	18,277
Gurnsey	383,728	317,397	547,072	498,859
Harrison	2,865	1,080	4,792	4,316
Hocking	1,086,538	911,488	13,358	1,622,429
Holmes	8,121	10,142	1,239,576	16,811
Jackson	1,088,761	1,257,731	1,291,778	1,598,876
Jefferson	243,178	294,664	571,909	666,187
Lawrence	137,806	111,814	108,505	88,440
Mahoning	231,035	217,118	228,761	232,346
Medina	198,452	132,705	181,861	157,410
Meigs	242,483	228,156	268,599	299,402
Muskingum	211,861	233,298	249,666	232,918
Noble	6,200	14,281	11,565	9,560
Perry	1,736,805	1,549,450	1,714,762	1,759,790
Portage	70,923	65,286	70,684	68,612
Stark	793,227	1,028,649	891,430	925,370
Summit	112,024	84,438	189,362	143,549
Trumbull	157,826	106,480	105,333	64,173
Tuscarawas	546,117	643,866	565,105	733,374
Vinton	108,695	98,749	86,611	104,366
Washington	2,432	2,770	3,835	3,796
Wayne	91,157	86,549	71,431	91,553
Total	10,910,946	10,907,385	11,788,859	13,050,187

Below are the details for the year 1891 :—

Counties	Lump.	Nut.	Pea and Slack.
Athens	1,058,530	161,841	153,909
Belmont	817,098	203,031	239,441
Carroll	141,325	30,115	34,081
Columbiana	434,474	108,765	121,330
Coshocton	148,548	25,877	31,368
Gallia	14,693	....	3,584
Guernsey	335,416	79,327	84,116
Harrison	3,726	270	320
Hocking	1,327,301	202,799	92,329
Holmes	9,573	3,340	3,898
Jackson	1,148,330	265,105	185,441
Jefferson	439,165	99,496	127,526
Lawrence	69,631	12,337	6,472
Mahoning	168,589	32,233	31,524
Medina	116,689	13,952	26,769
Meigs	230,707	46,606	22,089
Muskingum	175,674	25,852	31,392
Noble	8,190	780	590
Perry	1,431,113	194,689	133,988
Portage	49,821	5,495	13,296
Stark	711,705	81,328	132,337
Summit	104,543	11,360	27,646
Trumbull	57,509	3,868	2,796
Tuscarawas	447,984	134,847	150,543
Vinton	85,266	10,378	8,722
Washington	2,644	648	504
Wayne	63,036	14,734	13,783
Totals	9,601,280	1,769,073	1,679,834

Mr. Haseltine notes that there was a gain of 672,923 tons of lump coal and 306,724 tons of nut coal. The pea and slack exceeded that of the former year by 281,681 tons, while the total increase in the year's production reached 1,261,328 tons. This amount of gain has been exceeded but three times since the creation of the department. In point of production the counties stand in the following relation: Perry, Hocking, Jackson, Athens, Belmont, Stark, Tuscarawas, Jefferson, Columbiana, Meigs, etc. The counties of Athens, Hocking and Perry, embraced in what is known as the Hocking Valley field, produced $36\frac{4}{10}$ per cent. of the entire output of the year 1891.

It is further stated that during the year 1891 mining machines were used in twenty-one mines. As a power for operating, of these thirteen use compressed air, six electricity and at two mines both powers were employed. The coal produced from this source amounted to 1,654,081 tons, showing a gain of 505,632 tons over the preceding year; of this, 1,026,964 tons were produced in Hocking County, 383,079 tons in Athens County, and the remaining 244,038 tons were distributed over nine remaining counties. The returns show that about 900 hands were employed in operating the machines and blasting down and loading the coal which they produced. During the year there were 114 mining machines in use, twenty-five of which were of the electric type.

On the subject of manual labor in mining, the returns indicate that after making deductions for the number of miners employed and the number of tons mined by machinery during the year, there were 20,181 pick miners employed, who produced 11,396,160 tons of coal, being an individual average of 564 tons and 1,400 pounds each, or two tons and 1,640 pounds each day the mines were in operation during the year. This shows a loss to each miner of fifty tons as compared with 1890. During the $199\frac{8}{10}$ days the mines of the State were in operation, the daily average production was 65,316 tons, a gain over the preceding year of 7,243 tons, and a daily loss of nineteen tons as compared with 1889. These results are based on the run of mine coal, made necessary owing to the coal not being screened at all the mines in the State. A further necessity arises from the fact that at the mines where the coal is produced by both machines and pick mining, the amount of small coal from each source is not weighed separately.

MICHIGAN.

Hon. Edwin B. Winans states that coal is found in this State over a pretty wide area, in Huron, Arenac, Shiawassee, Clinton, Ingham, Eaton, Jackson and in other counties; but it has only been extensively mined in Shiawassee and Jackson counties, principally in the latter, Coal mining has for many years been a prominent industry in and about Jackson. It is less profitable than it used to be. It is difficult to mine coal in Michigan at a profit in competition with Ohio and Pennsylvania. The coal seams are comparatively thin, never more than 4 feet and generally, when worked, 2½ to 3½ feet thick. The mines are very wet, taking all the surface drainage, and are frequently poorly provided with rock covering, so that sometimes, even when the coal seam is of workable thickness the coal cannot be mined by reason of the insecurity of the overlying rock.

"Michigan coal is of good quality for steam making purposes and is said to be well adapted to locomotive use. There are really many places where a few tons are gotten out and used for blacksmith and other similar purposes, but as a whole the production of this mineral in this State does not increase. Every year there is a local stir somewhere over an alleged remarkable discovery of coal, but usually no important results transpire. The good mines, so far, have been near Jackson and at Corunna, though it is said that the investigations which have been made at Sebewaing in Huron County will result in the opening of a valuable mine and consequent large production of coal. The coal is mined at 60 to 80 feet below the surface." The total production of the State for every year given has been as follows:

1876 and previously.....	350,000	tons.	1884........................	36,712	tons.
1877........................	68,647	"	1885........................	58,676	"
1878........................	85,312	"	1886........................	49,843	"
1879........................	82,015	"	1887........................	36,545	"
1880........................	128,053	"	1888........................	59,231	"
1881........................	130,190	"	1889........................	57,665	"
1882........................	135,339	"	1890........................	71,991	"
1883........................	71,296	"	1891........................	80,307	"

MISSOURI.

The sixth annual report of the Inspector of Mines for the fiscal year ending June 30th, 1892, shows that there was an average price received per ton at the mines for coal during the year of $1.26, a decrease compared with the previous year of 48 cents per ton. The coal product is reported from 454 mines, large and small, scattered among 34 counties, with an average of 8,059 men employed. The accidents occurring number 41 non-fatal and 20 fatal, with an average of 150,864 tons of coal mined for each life lost. The kegs of powder consumed in the mines number 53,450. There were 23 new mines opened up, not including small ones, and 10 mines worked out and abandoned.

Following is a statement of the output by counties in the four years named:—

Counties.	1889.	1890.	1891.	1892.
Adair	16,532	14,840	17,110	14,820
Audrian	22,298	22,813	19,569	29,792
Barton	122,664	65,097	63,626	108,784
Bates	729,633	671,373	726,273	659,924
Boone	9,944	21,302	23,577	21,058
Caldwell	26,074	17,074	22,661	38,333
Callaway	12,633	18,355	15,581	16,551
Carroll	....	....	....	1,380
Cedar	....	....	1,264	4,181
Chariton	....	120	1,170	2,312
Clay	....	5,036	8,289	....
Cole	....	....	2,000	1,548
Cooper	1,027	1,594	2,200	3,666
Dade	2,290	1,400	3,402	6,881
Grundy	18,000	23,593	28,983	28,670
Henry	210,376	127,281	144,139	137,258
Howard	....	4,000	....	....
Jasper	....	....	633	....
Johnson	12,803	13,187	10,530	10,485
Lafayette	320,448	329,845	352,603	347,600
Linn	2,136	13,403	28,036	35,588
Livingston	....	1,100	200	1,000
Macon	223,660	457,896	454,029	685,335
Miller	....	87	130	127
Morgan	....	240	488	....
Montgomery	10,003	14,744	13,124	16,039
Monroe	....	108	36	....
Nodaway	....	....	2,222	1,850
Putnam	75,877	91,584	123,526	134,984
Pettis	....	....	....	433
Ralls	....	675	614	280
Randolph	184,609	245,898	224,758	297,011
Ray	207,829	240,462	282,247	272,948
Saline	832	660	7,981	4,440
Schuyler	....	300	280	766
Shelby	....	40	8	....
Sullivan	....	....	560	8,800
St. Clair	....	....	3,866	5,405
Vernon	13,313	33,292	64,303	119,036
Totals	2.223,477	2,437,399	2,650,018	3,017,285

IOWA.

The mine inspectors reports are for the fiscal year, ending June 30th.

District No. 1.	Tons 1890.	Tons 1891.
Appanoose	288,729	393,255
Adams	14,280	14,872
Davis	3,200	3,272
Lucas	352,134	136,722
Monroe	209,402	355,477
Page	2,320	2,700
Taylor	8,120	13,420
Wapello	297,459	169,290
Warren	17,923	15,604
Wayne	21,200	31,578
Total	1,314,765	1,136,190

District No. 2.	Tons 1890.	Tons 1891.
Mahaska	990,825	963,558
Keokuk	398,948	363,617
Jasper	156,003	146,091
Scott	8,369	10,534
Jefferson	4,900	2,932
Van Buren	40,405	46,764
Hardin	....	....
Total	1,598,950	1,531,496

District No. 3.	Tons 1890.	Tons 1891.
Boone	132,584	189,577
Dallas	42,698	43,324
Greene	74,135	74,544
Guthrie	8,939	11,993
Marion	170,183	210,061
Polk	508,149	397,833
Webster	130,099	124,963
Totals	1,066,787	1,052,295

A recapitulation of the detailed reports is given below:

No. of District.	Mines.	Coal produced	Miners.	Other employes	Price per ton for mining.	Av. sell'g price per ton at mine
District No. 1	153	1,314,765	3,313	548	$ .79	$ 1.34
District No. 2	88	1,598,950	2,817	602	.78	1.41
District No. 3	103	1,066,787	2,123	496	.95	1.54
Totals for 1890	344	3,980,502	8,253	1,640	$ .82	$ 1.42
District No. 1	170	1,136,190	2,721	687	.83	1.32
District No. 2	97	1,533,496	2,211	754	.76	1.32
District No. 3	110	1,052,295	2,103	654	.84	1.57
Totals for 1891	377	3,721,981	7,035	2,095	$ .81	$ 1.39

TENNESSEE.

Hon. D. G. Goodwin furnishes the following valuable chapter on the coals of this State: There are 87 coal mines in operation or temporarily suspended in the State of Tennessee. Many of these mines are grouped together under a single name, as the Sewanee Mines at Tracy City, or the Coal Creek Mines in Anderson County.

The total production of coal of all grades in Tennessee for the year 1889 was 1,925,689 short tons, contributed by the following counties:

	Tons.		Tons.
Anderson	457,069	Marion	203,923
Bledsoe	225	Morgan	68,229
Campbell	123,103	Overton and Putnam	10
Cumberland	124	Rhea	149,194
Fentress	25	Scott	108,027
Franklin, Roane and White	174,551	Van Buren and Warren	35
Grundy	400,107		
Hamilton	241,067	Total	1,925,689

Of this amount of coal 539,130 tons were manufactured into coke, or 27.9 per cent. The amount shipped as coal was 1,334,424 tons, or 69 per cent.; sold to the local trade, 13,212; used by employees and for steam at mines, 38,923 tons. Total value of coal sold, $2,338,309. Number of employees, 4,108.

The coal produced in Tennessee in 1890 was 2,169,585 short tons, being an increase over the previous year of 243,896 tons, or something over 12 per cent. The mines in the following counties contributed to the product:

	Tons.		Tons.
Anderson	582,403	Morgan	143,518
Campbell	126,367	Rhea	211,465
Franklin, Roane and White	124,602	Scott	136,365
Grundy	349,467	Small mines	4,300
Hamilton	277,896		
Marion	213,202	Total output in 1890	2,169,585

Of this total 621,713 tons, or 28.7 per cent. were made into coke; 1,482,357 tons, or 68.3 per cent, shipped; and the remainder used at the mines or sold to local dealers.

The value of the coal product in 1890 was $2,395,746, or about $1.10 per short ton at the mines. Average number of persons employed, 5,082.

In 1891, the total output of coal was 2,527,000 short tons.

Tennessee coke produced in 1891 352,200 tons; of this the First District produced 183,167 tons; Second District, 157,000; Third District, 12,033 tons. The Sewanee Mines produced for the year 1891 397,736 tons of coal, of which 214,990 tons, or 54.05 per cent, were converted into coke; 180,985 tons, or 45.50 per cent., were sold as coal, and 1,761 tons or .45 per cent., used for steam at the mines. The number of persons employed at the mines was 5,598, of whom 858 were convicts.

There are three districts into which the coal mines have been divided: First District embraces the counties of Cumberland, Bledsoe, Franklin, Grundy, White, Overton, Putnam, Warren, Marion, Fentress and Van Buren. Second District embraces the counties of Roane, Rhea, Hamilton, Morgan and Scott. Third District embraces the counties of Anderson, Campbell and Claiborne. The following is the output of the several districts for the years named:

DISTRICTS	1888. Short tons.	1889. Short tons.	1890. Short tons.	1891. Short tons.
First	637,415	630,333	616,819	764,017
Second	683,973	681,962	839,696	710,491
Third	645,909	579,542	708,770	1,035,230
Total	1,967,297	1,921,837	2,165,285	2,509,230

The output from small mines not enumerated in the districts given in the table above was, for 1891, 17,262 tons; for 1890, 4,300 tons; for 1889, 3,852 tons. These amounts added to the totals for the several years, as given in the district table, will make the total output for the State correspond with what has been previously given.

The following table, valuable for reference, shows the product of coal in Tennessee from 1873 to 1891, inclusive;

YEARS.	Short Tons.	YEARS.	Short Tons.	YEARS.	Short Tons.
1873	350,000	1880	641,042	1886	1,714,290
1874	350,000	1881	750,000	1887	1,900,000
1875	360,000	1882	850,000	1888	1,967,297
1876	550,000	1883	1,000,000	1889	1,925,689
1877	450,000	1884	1,200,000	1890	2,169,585
1878	375,000	1885	1,440,957	1891	2,527,000
1879	450,000				

One of the largest concerns in the State is the Tennessee C., I. & RR. Co. At the Tracy City mine, 136,101 tons of coal were shipped in 1892, and 123,675 tons of coke; a total business of 259,777 tons.

UTAH.

The output of coal in this territory was as follows:—

Company.	1888.	1889.	1890.	1891.	1892.
Pleasant Valley Coal Co.	160,294	141,049	232,265	237,743	253,000
Utah Central Co.	60,000	65,711	89,601	90,946	58,500
Grass Creek Mines	5,000	....	....	....	....
Home Coal Co.	30,815	35,136	35,206	43,000	37,290
Small mines	3,000	4,104	5,209	5,000	18,000
Total net tons	259,109	246,000	362,301	376,699	366,790

We are furnished the following valuable report:—"Utah is abundantly supplied with coal land, only a small portion of which has been developed. The most extensive mines so far opened are at Pleasant Valley, near the town of Scofield, and at Castle Gate. The Pleasant Valley Coal Co. own and operate mines at Pleasant Valley and Castle Gate, Emery County, Utah. They employ from five to seven hundred men in mining and making coke. During the past year the output from their mines exceeded the output of 1891 about six thousand tons, the mine at Scofield having turned out 152,000 tons and that of Castle Gate 101,000, making a total of 253,000 tons, against 247,000 tons in 1891, as the work of the

Pleasant Valley Coal Co. At their Castle Gate colliery there were produced during the year 7,500 tons of coke of good quality, produced from the slack coal. The Union Pacific Co. owns a mine at Pleasant Valley which produced in 1892 an aggregate of 58,500 tons of coal. They have a vein twenty feet thick of excellent quality. The Home Coal Co. operates a mine at Coalville, employing 170 persons, and during the past year it turned out 37,290 tons. The company made improvements to their plant during the year to the extent of $35,000. Most of their coal is used in and about the mines at Park City. The Chalk Creek CM. Co., after working several years in developing their property near Coalville and spending about $25,000, lately got in with their long incline to where the vein is ten feet wide and the coal solid and of excellent quality. They have good machinery and report the product for the year at 3,000 tons. It was only one month ago that they really began shipping. Their coal is sold in this city. The Fairview Mining Co. owns a twelve-foot vein near the head of San Pete Valley. Its product was about 5,000 tons for local consumption. Several other small mines in localities remote from transportation supply fuel for local consumption to the extent of a few thousand tons."

VIRGINIA.

Prior to 1883 comparatively little coal was mined in Virginia, the output of 1880 being less than 50,000 tons, but during that year the Flat Top coal regions were opened up mainly by the Southwest Virginia Improvement Co., the Norfolk & Western RR. having been extended to this section. The collieries are located on branches of the Norfolk & Western RR., in Tazewell County, Virginia, and in McDowell and Mercer Counties, W. Va. (It has been thought well to keep the shipments over this line as if originating in Virginia, care being taken not to duplicate the same in the chapter on West Virginia.) Radiating from a point, say 376 miles from Norfolk, are a number of laterals to the mines, the output from which comes over the road named, for sale and shipment.

The district is divided into—1st. The Pocahontas workings at and near the town of Pocahontas, Virginia. 2d. The Bluestone workings near Bramwell, in Mercer County, West Virginia. 3d. The Elkhorn workings in McDowell County, West Virginia, on the headwaters of the Elkhorn.

Stated in gross tons, the output of coal and coke has been in the years named:—

1887	1,026,142 coal.	136,450 coke.
1888	1,398,243 "	181,177 "
1889	1,592,435 "	253,170 "
1890	1,798,721 "	386,100 "
1891	2,418,000 "	355,500 "
1892	2,750,000 "	530,000 "

The first operation opened in the Flat Top coal field is the great Pocahontas colliery, which was laid out early in 1880 by W. A. Lathrop, who was then in charge as superintendent. The spot where Pocahontas now stands was then a wilderness, covered with forest and an undergrowth of laurel. The little stream Laurel, a tributary of the Bluestone River, wound in a zig-zag course from one side to the other of the hollow where now stand the 650 coke ovens and the thriving town of 6,000 inhabitants. The work of building a railroad to this place was a feat in engineering. Rock cuts and tunnels were cut and trestles erected by the hundred and the outlay of capital by the Norfolk & Western RR. to open up this field amounted to several millions. The mines at present are the most extensive in the United States. The area of coal is almost unlimited. The vein is eight feet in the clear, leaving a 2-foot vein, which is coal of excellent quality but has several streaks of sulphur in it. It is therefore left for roof which is of a tough nature and makes the working of the mine entirely safe. The coal is hauled out of the colliery by seven locomotives, which take it a distance of 2½ miles, to a tipple one-half mile below the entrance to the colliery. The East mine has 22 miles of steel track. The State line between Virginia and West Virginia is passed in the centre of the colliery. The workings are in Tazewell County, Virginia, and Mercer County, West Virginia, having openings in both States. It gives employment to over 500 miners who are principally negroes and Slavs. During a celebration on the Fourth of July the main tracks of the mine were lighted by electricity and the workings were open to the public for the day, and over 5,000 availed themselves of the novel opportunity of visiting a mine lighted by electricity. The West mine on the opposite side of the narrow valley, although at present not quite as extensive, will in a few months have equally as large an output as the East mine. This mine in its interior crosses the State line between Virginia and West Virginia and the workings are in three counties, Tazewell County, Va.; McDowell and Mercer Counties, W. Va. The main entry of this colliery is 2¼ miles in length. The opening on the opposite side of the mountain is in a section of country in McDowell County, known as Tug, the source of the Tug River, a tributary to the Big Sandy. The new bridge and tipple and several new entries when completed will double the output of the colliery. Both mines are thoroughly ventilated by mammoth fans.

This coal is known all over the world, due to the special energy of the sales agents and the liberal use of printers' ink; the fastest time ever made by the Atlantic liners has been done when using this Pocahontas coal; they have also had some of the best trial trips ever made by the new American Navy, and the coal and coke is being marketed wherever the best fuel is needed for the particular purposes to which it is adapted. A comparison with the slower growth of other districts in Maryland and in Pennsylvania shows the magnificent supply of coal there is tributary to the Norfolk & Western RR. By the western extension a trade will be done in the cities and towns of the Western and Northern States.

On January 1, 1891, the condition of the coke making industry was as follows: Number of ovens completed, 2,326; number of ovens building, 581; number of ovens contemplated, 574.

NORTH DAKOTA.

Commissioner of Industrial Statistics Helgeson reports an output of 3,420 tons in the year ending June 30, 1892, but he says his information is far from complete. To illustrate, only four coal mines are reported at all in 1892, and only one of these a leading mine—the majority of the important mines not being represented in the tables. The output is perhaps 30,000 tons annually. A company has been organized at Fargo, N. D., to be known as the Lehigh Coal Co., the capital stock is $200,000. The officers elected are George Q. Erskine, of Fargo, president; A. C. McGillivray, of Dickinson, vice-president; R. B. Fleming, of Fargo, secretary. The company expected to mine 10,000 tons in the past winter from their lignite mine at Lehigh, west of Dickinson, N. D. The use of lignite for manufacturing purposes is increasing very rapidly in the State, where the railroad rates are such as not to be prohibitive.

There is plenty of coal, but as yet the development has not been great, and the Eleventh Census reports but 28,907 tons of 2,000 lbs.; as the country is settled there will be a demand for fuel, and the deposits will be worked. The average thickness of the vein being worked is six feet two inches, and the average depth of the vein below the surface now worked is fifty-eight feet.

A few analyses are appended of the coal found in this State:—

Coal found at	Minot.	Sims.	Williston.	Dickinson.	Mandan.
Volatile Matter......	55.22	48.59	51.59	52.59	49.47
Fixed Carbon.........	39.66	43.60	43.99	43.02	43.91
Ash......................	5.12	7.81	4.42	5.39	6.62
Sulphur.................	...	...	.17	...	...

The coals found at Dunseith, New England City, Coal Harbor, Sykeston, all show fairly good results, so that twenty samples of North Dakota coal analyzed, give an average of—Water and Volatile Matter, 48.37; Fixed Carbon, 44.71; Ash, 6.82; average of samples analyzed for sulphur, .34.

MARYLAND.

Actual shipments of Maryland coal have been as below, in the years named:

Year.	By B. & O. Railroad.	C. & O. Canal.	Penna. Railroad.	Total.
1887.........................	2,220,067	262,345	329,471	2,811,882
1888.........................	2,204,555	250,519	479,833	2,934,907
1889.........................	1,915,004	53,293	542,181	2,510,478
1890.........................	2,105,852	....	973,041	3,078,893
1891.........................	2,143,299	48,364	1,053,113	3,244,676
1892.........................	1,864,469	263,821	782,014	2,910,304

In the past year 148,046 tons to the local trade, not included above. The B. & O. took 373,988 tons for supply coal, which is included in the amount credited to it, as shipments.

Since the year 1880 there have been shipments from the North Potomac basin which are sometimes included in the tonnage from Maryland, as the coal comes into market and is sold as "Cumberland" but we have deducted this tonnage and credited it to the State of West Virginia. Last year this tonnage was 971,214 tons, and the total 6,120,399 from the beginning of shipments.

Taking the business from the beginning in the year 1842, the total shipments to the end of 1892, as stated in the reports of the "Cumberland" coal trade would show 75,055,545 gross tons, but from this should be taken the coal from the mines along the W. Va. Central Ry. in the North Potomac part of this basin, 6,120,399 gross tons.

The decrease in the trade—altogether from the mines along the Georges Creek

—was due to the indisposition of the companies to compete for business on the low prices which ruled during the major portion of the year; cars also were not had because of the lack of motive power; the prices were kept to the agreed basis fairly well, and we quote:

"Cumberland" at Baltimore:—

1887	$2.45	1890	$2.60
1888	2.60	1891	2.60
1889	2.60	1892	2.50

For Georges Creek at New York:

1887	$3.70	1890	$3.50
1888	3.50	1891	3.50
1889	3.50	1892	3.40

DETAILS FOR 1892.

Shippers.	B. & O. RR.	C. & O. Canal.	Penn. RR.	Surp. & Local.	Total.	Increase.
Con. Coal Co......	670,042	209,321	594	58,738	938,695	27,718
American C. Co..	132,964	....	235,937	17,293	386,194	D.—63,427
Geo. C. C. & I. Co	260,287	36,162	1,182	3,004	300,635	D.—56,292
Maryland C. Co..	60,091	....	216,311	9,814	286,216	D.-120,248
Borden M. Co....	58,440	....	185,259	11,867	255,566	D.—44,702
B. & G.C.V.C.Co.	198,452	....	1,336	2,201	201,989	865
New C. Coal Co.	83,791	....	115,755	1,882	201,428	D.——5,385
Union Mine.......	124,643	18,052	20,933	13,576	177,204	D.——2,028
Potomac C. Co..	134,968	....	....	5,529	140,497	D.—44,209
Franklin C. C. Co	64,647	....	....	7,931	72,578	D.——4,015
Big V.C. C. (Md.)	62,615	....	3,928	441	66,984	4,152
Piedmont C. C.Co	6,172	....	....	7,326	13,498	D.—28,941
Anthony M. Co..	2,195	286	779	7,903	11,163	1,438
Swanton M. Co..	5,167	....	....	541	5,703	D.—27,326
NORTH POTOMAC BASIN.						
W.V.C. Ry.Co.'s Elk G'rd'n Mines	105,510	3,080	246,102	9,817	364,509	D.—58,281
Davis C. & C. Co.	32,591	....	74,600	88,682	195,873	D.—39,302
Thomas Mine.....	47,766	....	41,924	35,591	125,281	43,536
D. & E. Coal Co.	39,712	....	15,996	22,210	77,918	D.—23,287
Cumberland C.Co	40,776	....	22,015	25,072	87,863	72,531
E. G. B.V. M. Co.	27,874	....	9,784	7,704	45,362	39,264
A. & G.C.C.C.Co.	38,226	....	4,139	....	42,365	D.—50,632
Hampshire Mine.	9,172	....	8,154	5,861	23,187	20,759
B.V. C.C., W.Va.	3,738	....	55	83	3,876	3,307
Junior Coal Co...	322	....	....	3,080	3,402	3,402
Fairfax Mine.....	236	....	660	92	988	988
Bayard Mine......	21	....	19	376	416	416
Merrills Mine.....	43	....	24	107	174	D.—423
Lev'ring C.&C.Co	....	....	....	....	....	D.—544
Virginia C.&C.Co	....	....	....	....	....	D.—195
Total, gross tons.	2,210,456	266,901	1,205,486	346,721	4,029,564	D.—350,879

WASHINGTON.

This State now has a Geological Survey which is doing good work. Mr. Geo. A. Bethune is chief and we quote from his last annual report: "The lignite measures extend from the County of Whatcom on the north, through King, Pierce, Thurston, Cowlitz and Chehalis Counties to the southward. Other strata of lignites (evidently off-shoots) exist on the Skookum Chuck River, in what is called the Hannaford Valley region. The workable seams of lignite so far uncovered in the great basin do not exceed eighteen in number. The Bituminous and semi-Bituminous measures of the basin are to be found below and to the eastward of the lignites. These Bituminous measures may be said to extend from Lake Whatcom (Whatcom County) clear into Lewis County on the south. From a commercial standpoint, the lignite coals of the basin are of most importance. The area in which these coals are found is also larger than those combined in which have been found existent the other species. The extent of the lignite area has been estimated at from 650,000 to 675,000 acres. The workable coal seams actively operated and undergoing process of development in the lignite area number twenty-three, with scenes of operations located from Whatcom County through to the Cowlitz River. Principal among those seams which have been made productive are those at New Castle, on the line of the New Castle branch of the Columbia & Puget Sound Ry., in eastern King County, known as the New Castle mine, the property of the Oregon Improvement Co. Here the mining of six distinct seams has been in progress for several years. The trend at the seams is south-southeast and north-northwest, with a dip of 45 degrees to the north. At Gilman, on the line of the Seattle, Lake Shore & Eastern Ry., and distant twelve miles from New Castle, and also at Coal Creek, distant three and one-half miles from New Castle, are found workable seams of lignite coal, which have been mined with profit for some years. At Gilman, what is termed the Gilman mines, a seam of clean lignite coal eleven feet in width is being mined. This is the property of the Seattle Coal & Iron Co. At Coal Creek operations were successfully conducted by the Oregon Improvement Co. for three years on a seam of clean coal eight feet nine inches in width, but for a reason unknown to me were discontinued six months ago.

"Seams of Bituminous coal adapted to the manufacture of coke are found in Western Washington in Skagit, King, Pierce and Whatcom Counties, and in Eastern Washington in Kittitas County, along the head waters of the Yakima River. These coals, in process of coking, fuse their fragments together in an adhesive mass, and as the gases are liberated by the heat, this mass is puffed up into a hard and highly cellular substance consisting of fixed carbon and the mineral matters in the coal. The split or black coals, while Bituminous in character, are diametrically opposite to the coking coals, in that their transformation into coke cannot be made to occur. These coals have thus far been found only in Kittitas County, though undoubtedly further investigation will disclose their presence elsewhere in the State. In the manufacture, or rather in the work of reducing our iron ores to the metallic state, these coals will be found well adapted. I have seen excellent samples of Cannel coal from the Skokomish River, in Mason County. This coal is best adapted to the manufacture of gas because of the high percentage of its volatile gases.

"Many of the Bituminous coals of the Puget Sound basin have been found as valuable for the manufacture of gas as for steam and domestic purposes. While they may be said to serve the former purpose best, coals found in the southeastern portion of the basin rank superior; still, some coals equally well adapted to gas manufacture have been mined these several years in other portions of it. One of the Paul Mohr seams alluded to contains an excellent gas coal. In three of the workable seams at Ruffner, on Raging River, are found good gas coals. These seams are only just being made productive. At the South Prairie and Carbonado mines are being worked two seams—six feet four inches and seven feet two inches, respectively; the former of which produces an excellent gas and the latter a fine quality of steam coal. There can be no doubt that even some of the lignite seams contain coals suitable for the manufacture of gas. The product of the Alta, Kangley, Green River, Gregg, Franklin, Black Diamond, Cedar Mountain and New Castle seams will be found of a character suitable for the purpose. The Blue Canon mine, just being made productive, and which is situated on the Whatcom measures, should produce a first-class gas coal. The trend and dip of its three workable seams is similar to those noted in the measures. At a depth of seventy-five feet a seam eighteen feet in width of clean coal is exposed. At a depth of 215 feet the seam is found to be twenty-three feet seven inches in width, clean coal. The Occident and Blue Canon companies are operating the same seams, the product closely resembling that of the Black Diamond mine, eighty-five miles to the southeast."

The output in King County during the year 1892 was from the following mines: Gilman, 102,105 tons; Newcastle, 154,225; Franklin, 73,500; Cedar Mountain, 12,573; Black Diamond, 89,935; Denny, 3,200; Kangley, 14,152; Alta, 13,500. In Kittitas County: Roslyn, 271,513 tons; Jennings, 4,740; Blue Canon, 25,675. In Pierce County: Carbon, 203,980 tons; Wilkeson, 82,132; Tacoma, 20,250; Acme, 3,440; South Prairie, 43,955. In Thurston County: Bucoda, 12,456 tons; Florence, 5,240; Eureka, 2,000; Kelso, 1,203; Castle Rock, 800. This would give a total for the State of Washington of 1,140,575 net tons.

Below is a comparative table by counties:

	1889.	1890.	1891.	1892.
King	415,779	517,492	429,778	463,190
Kittitas	294,701	445,311	348,018	301,928
Pierce	273,618	285,836	271,053	353,737
Thurston	46,480	15,000	1,400	21,700
Net tons	1,030,573	1,263,689	1,050,249	1,140,575

This does not include the consumption at the mines and the mining towns.

Tacoma Coal & Coke Co. shipped in 1892 5,262 tons of coke. The Willkeson Coal & Coke Co. made 2,795 tons of coal into coke, in 1892.

Inside employees, 2,363; outside, 927; total, 3,290 in 1892.

ARKANSAS.

Mr. John C. Branner, in the Annual Report of the Geological Survey of Arkansas, says:—"Arkansas coals occupy that middle position, among the various types, which combines many of the characteristics of the extremes with characteristics of their own, which the extremes lack. Among these Arkansas coals, and even among those coming from closely adjoining localities, there is moreover a great difference in their capabilities. It therefore behooves all who have interests in these coals to pay careful attention to the uses to which each particular coal is adapted and those energies will be the best spent which look toward making the demand in its special field exclusive and imperative for that special coal. Such activity should include not merely the direct soliciting of custom, but also the study and the designing for each special coal of the best form of grate or furnace, either domestic or industrial, of the best mode of preparing the coal for market, of the condition in which the coal is best for any use it may be put to, and, in short, all such questions as lead to the development of all that is good and valuable in the coal should be given the most careful attention."

The Kansas & Texas Coal Co., operating the Huntington mines in Sebastian County, referred to in previous editions of this work, did about 265,000 tons last year and the Western C. & M. Co., at Jenny Lind, (a protege of the Missouri Pacific Ry. Co.), did 245,000 tons, there was also perhaps 39,000 tons done by others in the same county. Then there were the Ouita Coal Co. in Pope and Johnson Counties, with 65,000 tons, Stiewell & Co. in Johnson, with 90,000 tons, and a few other smaller concerns in these counties with perhaps 10,000 tons in all, so that Arkansas may be put down at 740,000 net tons for the year 1892.

WYOMING.

We have the following figures for the year ending September 30th, 1892:

Total output lump coal	1,759,349 tons.
Total output nut coal	100,058 tons.

This report does not include the Cambria Coal & Mining Co., the Deer Creek Coal & Mining Co., and the Sweetwater Coal & Mining Co., the State Examiner reporting that he had sent blanks to these people but had received no returns.

Shipments, in cars, by the several companies operating at Rock Springs in the past three years have been:—

	1890.	1891.	1892.
Union Pacific Coal Co	18,400	19,220	27,790
Rock Springs Coal Co	5,500	3,900	3,500
Sweetwater Coal Co	2,400	4,200	5,600
Van Dyke Coal Co	900	1,400	1,500

Commercial coal only noted for the U. P. C. Co. Cars may be estimated at 17 tons each.

Ex-Gov. Campbell, of Ohio, William Allen, R. J. Deane, Arthur B. Townsend and George Green, of New York City, John Weir, of Wyoming, and Charles J. Barnes, of Chicago, have formed a company with a capital of $3,000,000 to develop vast properties in various portions of Wyoming. The objects of the company, as declared by the agreement and articles of incorporation, are to build two railroads to develop the soda lakes which are owned by Mr. Weir, the irrigation of 60,000 acres of land, the opening up of 10,000 acres of coal and 6,000 acres of iron land.

PITTSBURGH, PA.

To intelligently review the western Pennsylvania or "Pittsburgh" coal trade it is necessary to deal separately with the three sources of supply, namely: the river, the railroad and the coke region. Excluding the coke tonnage, the amount of coal mined in the district for the year ending with December, 1892, was, in round numbers, 12,000,000 tons.

For the railroad trade, the past year has been a prosperous one. The increase in the volume of business has been large, the greatest in the history of the district, and though prices have ruled low it can be asserted that the year's trading has been profitable. There have been no failures to record, and while all the old firms continue in it, some few new ones have entered the business. This is a fair gauge of its stability. A movement has been on foot for some time to attempt a combination of the railroad mines in the district, but so far it has not met with success. The object is, of course, to maintain a higher price for the product, but with such firms as the New York & Cleveland Gas Coal Co., the Robbins companies, the Blyth Coal Co and other big concerns working up to more than their capacity, plus the car shortage, there is very little probability of the arrangement being accomplished.

COAL TONNAGE ORIGINATING IN THE PITTSBURGH DISTRICT, DURING THE YEAR ENDING DECEMBER 31, 1892, BY ROADS.

Pittsburgh & Lake Erie	1,853,553	tons; increase over '91	514,700
Pan Handle lines	2,217,573	" " " "	400,000
Baltimore & Ohio	1,523,856	" " " "	330,282
P., V. & C. RR. (estimated)	1,000,000	" " " "	100,000
P. RR. mines, N. Y. & Cleveland Gas Coal Co	936,000	" " " "	136,000
Westmoreland Gas Coal Co. (estimated)	800,000	" " " "	100,000
Total tonnage	8,330,982	Total increase	1,580,982

Figures of the P., V. & C. RR. and P. RR. tonnage are estimated; the figures are within the amounts.

THE RIVER COAL DISTRICTS.—The strike against the reduction of ½ cent a bushel in the rate paid for mining, inaugurated in September and continuing on March 1, 1893, knocked the bottom out of this trade for the year. If any of the operators, excepting those engaged in a local business, have made ends meet then they may regard themselves as being favored by fortune. The long strike and consequent inability to fill contracts, with paper maturing as the months rolled along, placed more than one operator on the anxious seat and kept him there.

The output of the river mines for the year ending December 31, 1892, by months, was as follows in bushels:—

January	9,215,300	May	13,066,100	September	3,070,600
February	11,828,300	June	10,712,900	October	2,345,200
March	18,226,900	July	4,380,600	November	4,097,400
April	13,726,200	August	3,174,900	December	2,973,900

This would give a total for year of 96,818,300 bushels, being a decrease of 10,096,350 bushels on the tonnage of 1891. Of the total tonnage about 20,000,000 bushels were consumed locally.

But one firm went out of business during the year, namely, the Globe Coal Co. and this was by sale of its property at a very good price to Jones & Laughlins, who paid $93,000 for 181 acres of solid coal. The Blyth Coal Co. added a river landing to its already extensive property and two new firms went into the business by acquiring and opening up old mines. The reasons actuating both sides to this prolonged struggle in the river district have already been set forth in THE COAL TRADE JOURNAL and need no recapitulation here. The use of mining machinery will assist in breaking the strike and already one or two mines are experimenting in this direction.

THE COKE DISTRICT.—The amount of coal mined in the coke region for the year ending December 31, 1892, was 8,360,108 tons, an increase of 1,896,307 tons over the preceding year. The amount of coke produced was 4,280,970 tons, and the amount of raw coal shipped was 962,244 tons. The condition of this trade has been fairly good, but was affected by the decline in the pig iron market during the latter part of the year.

At the close of the year 1892, the following were quotations per bushel: River coal, run of mine, in flats, 4¾@5 cents; retail, 7@8 cents; slack, mill use, 3 cents; on board at Cincinnati, 6½@7 cents; on board at Louisville, 10 cents; on board at New Orleans (per bbl. of 180 lbs.) 33@35 cents; railroad coal, at mines, 95@$1.10 per ton; at retail, 7@9 cents per bushel; Anthracite, on cars, $5.50 per ton.

KANSAS CITY, MO.

The coal trade shows the following tonnage:

	1887.	1888.	1889.	1890.	1891.	1892.
Receipts	752,354	935,735	1,260,816	1,149,253	1,100,000	1,200,000
Shipments	134,559	174,197	269,281	385,000	425,000	455,000

The following may be taken as fairly representing the prices realized for coal at this city during the past two years:

BITUMINOUS.

	1891.	1892.		1891.	1892.
Farmers' lump	$2 75	$3 00	Weir City lump	$2 50	$2 75
Weir City nut	2 25	2 50	Rich Hill lump	2 55	2 55
Rich Hill nut	2 00	2 00	Lexington lump	2 40	2 50
Higginsville lump	2 25	2 50	Excelsior lump	2 75	2 75
Cannel	4 50	4 50	Foster lump	2 50	2 50
Illinois	3 00	3 00			

Domestic consumption is figured at 45,000 tons of Anthracite and 200,000 tons of Bituminous in the past year. The higher price of eastern Anthracite ($9.25 per ton as an average last year) led to the introduction of the semi-Anthracite coal from Arkansas, and it was also reported that the coal from Colorado classed as

Anthracite could be laid down here at a fair price. The growth of the coal trade of Missouri and Kansas has been marked in the past year and this city naturally feels some benefit therefrom.

LOUISVILLE, KY.

The following statement shows the consumption of all kinds of coal and coke at and in the vicinity of Louisville:—

	1888.	1889.	1890.	1891.	1892.
Pittsburgh by river............	750,000	800,000	640,000	526,000	500,000
Kanawha..........................	95.000	100,000	120,000	120,000	125,000
Kentucky by rail................	341,427	298,118	304,399	393,105	410,000
Anthracite by rail...............	13,377	6,740	2,846	.6,151	10,000
Coke (all routes).................	65,000	50,000	50,000	50,000	45,000
Total in tons of 2,000 lbs...	1,264,804	1,254,858	1,117,245	1,095,256	1,090,000

Regarding receipts of coal in this market, we are informed that the increased receipts were considerable during last fall and winter, of railroad coal, on account of low river and the small tonnage of Pittsburgh coal coming here for the last two or three months of the year. The tonnage of Pittsburgh coal, however, that passed through Louisville will fall but very little from what it was the year preceding.

MONTREAL, P. Q.

The following figures will show the growth of the trade at this city:—

Country received from.	1888.	1889.	1890.	1891.	1892.
United States, Anth. (tons)....	182,543	193,176	200,000	230,000	206,988
Great Britain, Bit. (tons).......	42,994	33,365	10,000	20,475	55.221
Nova Scotia, Bit. (tons)........	402,724	350,285	417,000	454,324	491,885

THREE RIVERS had 9,012 tons Nova Scotia coal in 1892, against 8,478 tons in 1891.

SOREL had 13,586 tons Nova Scotia coal and 8,108 English in 1892, against 55,727 tons Nova Scotia in 1891.

QUEBEC took 57,048 tons Nova Scotia coal and 17,572 tons English in 1892, against 44,414 tons Nova Scotia and 18,922 tons English in 1891. The receipts of Anthracite from the United States was about 20,000 tons each year.

ASHTABULA, OHIO.

The total business of the port in 1889 is stated by the customs officers to have been:—475,000 tons shipped to coastwise points, 82,000 tons fuel coal to steamers and 14,585 tons shipped to Canada. In 1890, it was 491,459 tons coastwise; 87,535 tons fuel; 44,334 tons foreign. In 1891, it was 241,230 tons coastwise; 239,894 tons fuel, and 25,173 tons foreign, In 1892, the shipments were 561,446 tons coastwise and foreign and 107,888 tons for fuel.

PHILADELPHIA, PA.

The local consumption of Anthracite is put at 2,000,000 tons, and of Bituminous 500,000 tons; there is also a growing trade in coke for manufacturing and domestic purposes. The shipping port at Greenwich of the Pennsylvania RR. Co., and that of the Philadelphia & Reading RR. Co., at Port Richmond transfer an aggregate of some 5,000,000 tons of Anthracite, Bituminous, gas coal and coke.

The total coal business of the P. & R. RR. in the fiscal years ending November 30th has been:—

	1889.	1890.	1891.	1892.
Anthracite	8,075,893	8,333,218	10,157,463	
Bituminous	1,238,187	1,633,644	1,855,712	

Pennsylvania RR. Co.'s tonnage in the calendar years:—

15,578,051	17,110,290	17,891,969	19,897,633

In the past year the line trade prices were advanced in conformity with the movement in the price of coal for deliveries at other points; the season opened with Broken and Egg at $2.15; Stove, $2.25; Chestnut, $2.20; Pea, $1.20, and Buckwheat at 75 cents per ton at the mines. Various changes in this schedule were made and the list for September was as follows:—Broken, $2.45; Egg, $2.90; Stove, $3.00; Chestnut, $2.80; Pea, $1.10; Buckwheat, 75c. To this must be added freight of $1.80 on domestic sizes, $1.40 on Pea and $1.25 on Buckwheat, so that the prices to city and line trade are:—Broken, $4.25; Egg, $4.70; Stove, $4.80; Chestnut, $4.60; Pea, $2.50; Buckwheat, $2.00. No change was made after this date, except that due to the extraordinary demand for the smaller sizes.

Closing prices at the mines for the line and city trade were:—

	Sch. W. A.	Sham. W. A.	Lorberry.	Ly. Valley.
Broken	$2 45	......	$2 85	$2 85
Egg	2 90	$2 90	3 25	3 70
Stove	3 00	3 25	3 40	3 90
Chestnut	2 80	2 85	2 85	3 20
Pea	1 10	1 10	1 15	1 65
Buckwheat	75	75	75	1 30

An effort was made in September to increase the tolls on coal for "the line and city trade" entering the city by all lines, but the Pennsylvania RR. refused to change its rates, and there was a great deal of friction, and as a result the P. & .R refused to make joint rates on other coal. The rate of tolls via P. & R. RR. was $1.80 per ton from the mines in the Schuylkill and Lehigh regions and $1.85 from the Wyoming region to Philadelphia and proportionate to other junction points. The old rates were $1.70 from the Schuylkill region, $1.75 from the Lehigh and $1.90 from the Wyoming, thus showing an advance of 10 cents on coal from the Schuylkill, five cents on the Lehigh, and a decrease of five cents per ton on the Wyoming region coal. The Pennsylvania agreed to reduce the Wyoming rate to $1.80 per ton in accordance with an implied promise made by them months before, owing to their belief that the rate was too high. They refused to advance the other rates. This controversy was kept up until January, 1893, much to the disadvantage of certain of the retailers in this city; at that date it was finally agreed that joint rates be restored to those of $1.70 from Lehigh and Schuylkill districts and $1.80 from the Wyoming.

The wholesale rates (f. o. b) at Port Richmond, which opened at the following figures, were also advanced as the schedules will show :—

OPENING.	Broken.	Egg.	Stove.	Chest.
Hard White Ash	$3 75	$4 00	$4 15	$3 90
Free-Burning White Ash	3 65	3 90	4 15	3 90
North Franklin White Ash	......	4 15	4 15	3 90
Schuylkill Red Ash	......	3 90	4 25	3 90
Lykens Valley	4 50	4 90	5 15	4 25

These were circular rates and we believe were not realized.

CLOSING.	Broken.	Egg.	Stove.	Chest.
Hard White Ash	$3 85	$4 25	$4 50	$4 40
Free White Ash	3 75	4 15	4 50	4 40
Shamokin	......	4 35	4 70	4 40
Schuylkill Red Ash	......	4 40	4 85	4 65
Lorberry	......	4 40	4 85	4 65
Lykens Valley	4 85	5 40	5 90	5 00

Carrying forward the system of preceding years, average rates may be said to have been as below :—

	Broken.	Egg.	Stove.	Chest.	Pea.
For the season of 1889 :					
Hard White Ash	$3 70	$3 85	$4 05	$3 80	$2 10
Free-Burning White Ash	3 50	3 75	3 95	3 75	2 10
For the season of 1890 :					
Hard White Ash	3 65	3 90	4 05	3 70	2 25
Free-Burning White Ash	3 50	3 75	4 05	3 70	2 25
For the season of 1891 :					
Hard White Ash	3 75	3 90	4 05	3 75	2 25
Free-Burning White Ash	3 65	3 90	4 00	3 70	2 25
For the season of 1892 :					
Hard White Ash	3 75	4 05	4 35	4 25	2 40
Free-Burning White Ash	3 70	4 05	4 30	4 20	2 35

The following were also made as a rate for coal going into New England, *all rail* at Highlands or Newburgh, during the fall of 1892 :—$4.25 for Broken, $4.75 for Egg and Chestnut, $4.85 for Stove and $2.60 for Pea. Free-Burning—$3.85 for Broken, $4.25 for Egg, $4.60 for Stove, $4.50 for Chestnut and $2.60 for Pea, in cars at the points named.

Referring to the New England connection of the P. & R. RR. Co., the annual report of that company says :—" During the year your Board has acquired a controlling interest in the stock of the re-organized Philadelphia, Reading & New England RR., the successor corporation to the Poughkeepsie Bridge System, having a line extending from Campbell Hall, in New York, to Hartford, in Connecticut, with a connection at Hopewell Junction with the New York & New England RR., an additional mileage to the Reading system of 196 miles. The new company has had the physical operation of the road but a few months and it is already earning more than the charges guaranteed by this company and it is expected that through the friendly alliances which have been recently formed with other lines in New England, the traffic over the new line will be greatly increased."

BOSTON, MASS.

The year 1892 proved one of the most profitable years that the Anthracite people have seen for some time. It has been profitable alike to the producers and the retailers. The opening of 1892 found the trade in a lifeless condition. Quoting from the report at that time, "The coal trade at this port is a decided farce at the present time. There is no demand for either Anthracite or Bituminous coal. In regard to the prices for hard coal there is no price for it just now. It is anything that a person had a mind to offer that was at all reasonable." This clearly shows the condition of the market at the opening of the year. This state of affairs continued for the first six weeks. The second month of the year witnessed the greatest coal deal in the history of the country. The facts relating are too well known to need repetition here. The P. & R. Co. were slow in defining their policy, consequently the market continued in an unsettled condition, the demand being very quiet, as but few of the dealers realized what a firm grasp the P. & R. Co. had on the hard coal output. Prices began to stiffen and this tended to check the demand and cause a hand-to-mouth business. Toward the first of April the buyers began to realize that the P. & R. Co. were fully able to hold the market, at the prices that they had made, and then the dealers began to stock up and for three months a heavy business was done, but in a very quiet way. The receipts of coal were very large. After this and during the summer and fall trade was very dull, and through the last three months of the year continued in a lifeless condition and the year closed with a very dull market, although the last week in December showed an improved condition of things owing to the cold weather then prevailing. Prices were advanced from time to time during the year until August when the final advance to $4.75 f. o. b. New York for Stove size was made, the other sizes advancing accordingly. The advances were mostly on the domestic sizes, while the steam sizes were not advanced as much, for the P. & R. Co. was awake to the necessity of holding their manufacturing trade if possible. The receipts were the heaviest for a number of years, but it must be remembered that a large portion of this did not pass into the consumers' hands. Therefore we do not think that the consumption of coal was as large as in 1891, as the fall and early winter of 1892 were mild and the high prices of hard coal diverted a part of its usual tonnage to the soft coal people. After the first of April circular prices were held very firmly and were realized in most cases until the early fall when the individual operators began to shade prices more or less until the close of the year. The P. & R. Co. held very firm and not a single instance was heard of where they made any concessions from the established prices. As the end of the year approached the dealers had less confidence in the ability of the P. & R. Co. to hold prices and consequently they only bought for immediate requirements, and they were further strengthened in their policy by the withdrawal of the C. RR. of N. J. from its combination with the P. & R. Therefore the year closed with very light stocks in the dealers hands. The P. & R. and L. & W.-B. Co.'s forced for an outlet for some of the heavy tonnage that was mined in the summer and fall shipped thousands of tons to this port and piled it up at different points within a few miles of Boston.

The year also opened with a very quiet market in Bituminous coal. The only business done for the first two months was on old orders. New business was scarce. In March trade began to pick up, and for two months there was the usual bustle after the yearly contracts which were for the most part taken at low delivered prices. During the summer trade was quiet. Freights were low and some of the shippers, disappointed in not getting their usual amount of tonnage, began offering coal at ridiculously low figures, and the market was rather demoralized in consequence. The first of October marked the beginning of trouble for the soft coal shippers. The movement on the railroads to tide-water was wretched and coal came along very slowly. Added to this was the delay in discharging at this end, particularly at Mystic Wharf. Every vessel arriving at this place was subject to from one to ten days demurrage during October and November. Thousands of dollars were paid out for this unsatisfactory obligation. Toward the end of the year the situation improved and the year closed with a quiet demand, but with the shippers all busy and behindhand on their old orders. The receipts of soft coal show a considerable falling off from last year. The reason is that a large amount of coal, previously coming by water, has been diverted to all-rail routes for inland points of delivery.

The retailers have passed a very successful year. Most of the dealers stocked heavily before the advance in the wholesale prices and they pursued a very wise policy in buying during the spring and summer as fast as they could make room for any coal. They advanced their prices fifty cents per ton in May and again twenty-five cents in August. They succeeded in realizing these prices on stocks bought early in the season, therefore during the summer and fall they liquidated their stocks at a good profit, and 1892 can be set down as one of the best that the retailers have experienced for a long time. A small amount of Cannel and Gas coal and about eight thousand tons of Nova Scotia culm complete the list of coal used here.

Several times during the year rumors were in circulation regarding a big Nova Scotia coal deal. The dailies stated that Mr. H. M. Whitney *et al* had purchased a large part of the coal lands of Nova Scotia. That he was to equip the mines with modern machinery, build large steamers for the transportation of their product, etc.

The facts are that Mr. Whitney has now control of several thousand acres of coal land in Cape Breton Isle. He proposes to equip the collieries with all the modern machinery for mining and transporting their coal (this will greatly reduce the cost of mining with their present crude methods of working), thereby supplying the home markets at a reduced price and at the same time at a handsome profit to his syndicate. Then he may, if possible, put it into the New England market in competition with Pennsylvania and Virginia coals.

Below are the receipts of coal, by vessel, for the years mentioned :

	1888.	1889.	1890.	1891.	1892.
Anthracite..........	2,057,259	1,647,348	1,740,564	2,039,443	2,065,536
Bituminous..........	1,004,195	914,966	964,857	1,070,088	875,930

BALTIMORE, MD.

This port is mainly of interest to the reader from the fact that large shipments are made from the loading wharves of the Baltimore & Ohio RR. Co., at what is known as Locust Point; this includes "Cumberland," Georges Creek and Meyers-

dale steam coals and the gas coal from West Virginia mines on line of Baltimore & Ohio road and that from the Youghiogheny mines in Pennsylvania, on line of the same road, for local use and for northern shipment; the estimate of 200,000 tons as last year's receipts of the gas coal referred to is a fair one. Although one of the oldest and most important of the coal loading ports in the United States, it is one of the most difficult from which to gain any information. People who should know apparently do not, and they profess the utmost indifference in regard to the value of the collection of statistics.

The Baltimore & Ohio carried to Locust Point in the years named:—

1887	2,167,007 tons.	1890.	2,090,911 tons.
1888	2,300,000 tons.	1891	2,296,735 tons.
1889	2,000,000 tons.	1892	2,000,000 tons.

Northern Central receipts at the Canton piers:

1887	765,082 tons.	1890	700,000 tons.
1888	680,962 tons.	1891	725,000 tons.
1889	666,972 tons.	1892	700,000 tons.

Perhaps 300,000 tons a year of the above is hard coal.

Baltimore & Potomac road brought in 15,338 tons of coal in 1887; 16,500 in 1888; 7,139 tons in 1889; 10,000 tons in 1890.

Foreign shipments were:—

1887	54,455 tons.	1890	37,190 tons.
1888	33,386 tons.	1891	122,818 tons.
1889	27,750 tons.	1892	97,385 tons.

CINCINNATI, OHIO.

Receipts have been as below:—

1892	75,388,316 bushels or	3,155,326 net tons.
1891	72,345,782 bushels or	2,608,923 net tons.
1890	67,988,146 bushels or	2,452,253 net tons.
1889	65,092,421 bushels or	2,348,055 net tons.

To make up the total in bushels we have the following grades:—

	1889.	1890.	1891.	1892.
Pittsburgh	36,677,974	42,601,615	43,254,460	41,299,170
Kanawha	23,761,853	19,221,196	19,115,172	18,865,325
Ohio River	544,940	454,385	1,479,670	704,821
Other soft coal	3,075,000	4,709,775	7,362,678	13,311,416
Anthracite	1,020,525	1,001,175	1,118,671	1,207,584

Years end with September 1 in the above statement.

The re-shipments of coal amounted to 13,814,000 bushels in 1891, and 18,163,000 bushels in 1892.

The range of prices the past year for Pittsburgh coal afloat, was 6½ and 11 cents per bushel, averaging 7.63, compared with 7.26 the preceding year, and an annual average of 7.82 for a period of ten years previous to 1892; for Kanawha coal, the past year, 6½ and 10 cents, averaging 7.09 cents, compared with 6.75 the preceding year, and 7.45 for a period of ten years.

Prices of coal delivered to consumers ranged during the year from $2.50 to $3.50 per ton, averaging $2.87 for Pittsburgh and the same for the bulk of Kanawha coal.

It should be borne in mind, however, that these are the prices for screened lump coal. The bulk of manufacturing and steam work is done with nut and slack, the contract price of which has ranged from $1.75 to $2.00 per ton delivered to consumers. With furnaces constructed to burn it economically a ton of nut and slack will do substantially the same amount of work as a ton of lump or run of mine. At these prices there is scarcely a large city in the country that can compare with it. This advantage alone will always keep Cincinnati in the very front rank of manufacturing cities.

MOBILE, ALA.

Receipts at this port have been:—

Tons of coal from	1887.	1888.	1889.	1890.	1891.	1892.
Alabama	39,232	38,785	43,620	39,320	51,267	70,298
Pennsylvania	910	648	1,454	1,327	1,775	1,500

This does not include the coal for use by the Louisville & Nashville and the Mobile & Ohio RR. Co's—say 30,000 tons.

The necessities of commerce and our new navy will require a great coal port in the Gulf. Cuba, the West Indies, South America, Mexico and Texas are now open and nearest to us. When the Nicaragua Canal shall be completed, we will have California and a share of the Pacific coast trade. Perhaps 500 British steamships now take in their cargoes at Galveston, New Orleans and other Gulf ports, calling at Norfolk and Newport News for their bunker coal in the course of the year. This business is steadily increasing, and is ready for the Gulf coal port. The coaling of foreign steamships will swell to enormous proportions on the completion of the Nicaragua Canal. Mobile is the place, and no other port can supplant her for that business. There are but two other places that can think of it, viz.: New Orleans and Pensacola. The first is, from her location, a great and growing commercial port. For years she has received her coal from Pittsburgh, bringing it down by river some 2,000 miles at great risk and cost. Now Alabama coal going to New Orleans by rail and water is steadily taking the place of Pittsburgh coal in New Orleans and is to-day the cheapest and best coal there but it will always be possible to bring Alabama coal to Mobile at much less cost than to New Orleans—fully fifty cents per ton less—as Mobile is some 140 miles nearer the coal fields. Pensacola has a good harbor near the sea, but has not so much water on her outer bar as Mobile. She has only one railroad and no rivers to the coal. There was 40,000 tons exported from Pensacola last year, and nearly as much from Mobile.

PEORIA, ILL.

Receipts, as per Board of Trade report, 591,831 tons; to this we add the local receipts by boat, etc., from adjacent mines, 15,750 tons, making a total of 607,581 tons as total receipts.

Deducting from above amount, shipments as per Board of Trade report, 272,086 tons, there remains 345,485 tons total amount of coal consumed in this city and immediate vicinity during the year 1892. On making very close comparisons and estimates, figures show that the immediate domestic trade consumed about

180,000 tons of soft coal and from 20,000 to 25,000 tons of Anthracite; deducting this amount (205,000) from the net receipts, 345,485, we have a balance of 140,485 tons as having been used by various industries; of the latter amount probably two per cent. being hard coal. It is very evident that shipments of Anthracite coal to this territory will be decidedly less during the coming year than during the past one.

The beginning of 1892, owing to mild weather, started out with a very light demand for either hard or soft coal, but during the month of March soft coal was in great demand, probably as much so as any time during the entire season. During July, August and Setpember, the demand for hard coal was very much below the average, owing to western trade depending on lower prices, which we rexpected to rule, but the constant clamoring for coal during November and December proved very much to the contrary as far as prices were concerned and coal was sold here at retail at $8.00 per ton. Many, however, resorted to soft coal as a matter of necessity and convenience.

The demand for Illinois coal was exceedingly great during the months of October, November and December, in fact the market was very firm from the first of September.

The old plan of mining is fast being abandoned in this district and improved machinery is being used for mining, hoisting and preparing the coal, thus bringing it to a much higher standard than heretofore. Many new mining companies are being formed, and old ones consolidated, so that the public will have better assurance of being served more promptly and with a better grade of coal.

HAVANA, CUBA.

Receipts of coal have been :—

1885	135,658 tons.	1889	181,686 tons.
1886	121,920 tons.	1890	181,845 tons.
1887	128,098 tons.	1891	184,207 tons.
1888	151,312 tons.	1892	189,033 tons.

Coke in 1891—8,495 tons; in 1892—9,541 tons.

The shipments from the United States to Cuba, in the fiscal year ending June 30, 1892, were 15,891 tons Anthracite and 357,219 tons Bituminous coal. The shipments to other West Indian points are noted elsewhere.

NEW ORLEANS, LA.

The account of sales of coal is kept by "barrels" at this city. Consumption in the past six years was as below—of *Pittsburgh* coal :—

1887	5,100,000 barrels.	1890	4,750,000 barrels.
1888	4,500,000 barrels.	1891	4,900,000 barrels.
1889	4,846,500 barrels.	1892	4,700,000 barrels.

A barrel is equal to 180 pounds; 25 bushels of 80 pounds equal the net ton 2,000 pounds.

There is a growing trade in the Alabama coal at this city and the coming season will see a very much larger tonnage handled, owing to the exertions of one or two concerns that seem to have an amount of energy and push enough to develop a good thing when the opportunity offers.

NEW YORK.

In a year of ordinary temperature the consumption of coal in New York City is very nearly 6,000,000 tons, of which Anthracite constitutes rather more than one-half, say 3,500,000; a little more than 2,000,000 tons of Bituminous are used; about 310,000 tons of Gas coal and 30,000 tons of Cannel. The amount of coal used in the city for gas making is about 415,000 tons, of which nearly one-fourth is Anthracite. It is estimated that of the city trade but little more than one-third is done by retailers, the wholesale dealers supplying a great deal on large contracts, and also a large amount on small contracts.

Close upon 2,000,000 tons of Anthracite are required to supply the domestic demand, and probably one-half of the Cannel consumed is supplied to that trade. Factories use nearly a round million tons of hard coal and the elevated railroads contract is for 200,000 tons. Two hundred and fifty thousand tons of Anthracite are required to heat by steam the many large hotels, flats and other buildings, and about an equal amount is annually handled by grocers and peddlers—this amount being included in the total of Anthracite for domestic use.

Including the coal used by blacksmiths as part of the factory trade, 650,000 tons is not a large estimate for the amount of soft coal consumed by that class of trade in the city. It is estimated by an eminent authority that nearly 1,500,000 tons are annually supplied to the steamers in New York harbor as fuel to the transatlantic lines and to coastwise vessels. The numerous excursion steamers get a cheap supply of fuel by obtaining Pea coal at the loading docks in the harbor; this is plentiful at the very season when the excursion business is at its height.

The Anthracite coal used in the city is brought in barges from the loading ports on the New Jersey shore. Bituminous coal comes in schooners and steam colliers from Norfolk, Newport News and Baltimore, and in barges from South Amboy, Port Reading and Port Liberty, N. J. The Baltimore & Ohio RR. Co. has established a coal handling pier at St. George, Staten Island. The Pennsylvania RR. Co. ships at South Amboy; the Lehigh Valley RR. Co. at Perth Amboy; the P. & R. RR. Co. at Port Reading; the C. RR. of N. J. at Elizabethport and Port Johnston; the P. & R. RR. Co., at Port Liberty; the D., L. & W RR.Co., at Hoboken; the Pennsylvania Coal Co., the Erie, the Delaware & Hudson Canal Co. and the N. Y., Ontario & Western Ry. Co. at Weehawken. The Pennsylvania Coal Co. at Newburgh, N. Y. The Delaware & Hudson Canal at Rondout, N. Y. The "Erie" at Piermont, N. Y., and the Ontario & Western at Cornwall, N. Y.

Jersey City annually uses something like 400,000 tons Anthracite and 200,000 Bituminous coal. Staten Island takes 200,000 tons Anthracite and 60,000 tons Bituminous coal. Small suburban towns require about two tons per inhabitant per annum, a very small amount of which is Bituminous. The larger a town the greater the amount of coal *per capita* consumed; on account of factories, elevators, steam heat and other luxurious habits, it is greatest in New York; or say over three tons.

There are annually some 2,250,000 tons of coal consumed in **Brooklyn.** Anthracite constitutes nine-tenths of the quantity as follows: Domestic use, 1,000,000 tons; factory use, 500,000 tons; peddler trade, 150,000 tons; grocery trade, 150,000 tons; steam heating of hotels, flats, etc., 20,000 tons. All the Bituminous coal is used in factories and blacksmith shops, the amount being estimated at 125,000 tons; 65,000 tons of gas coal are consumed there annually, and 1,000 tons of Cannel coal gratify those householders who like grate fires. The retail dealers in Brooklyn are fortunate, for of the 2,000,000 tons of coal used there, they sell 1,400,000 tons, more than two-thirds.

The year 1892 was one wherein there were the most rapid advances in the price of Anthracite coal which have been noticed since the violent fluctuations of the war time period. It was largely due to the fact that an attempt was made to control a majority of the output by forming a combination of the carrying companies which are also so largely the producing companies. On February 11, 1892, a lease was executed by the Lehigh Valley RR. Co. to the Philadelphia & Reading RR. Co. of its road, rights, franchises, leased and connecting lines, and the entire equipment for the period of 999 years; and on February 12th the Central RR. Co. of New Jersey executed a similar lease of its road to the Port Reading RR. Co. The Port Reading RR. Co. is substantially under the management and control of the Philadelphia & Reading RR. Co. By these leases the control of these systems of railroads was consolidated in the Philadelphia & Reading Co. Of these several companies the Philadelphia & Reading and the Lehigh Valley Co's are extensive producers as well as carriers of coal, while the Central RR. of New Jersey controls the L. & W.-B. Coal Co. and transports to tide-water a large part of the product of the Lehigh Coal & Navigation Co. Certain of the other companies were supposed to be in alliance with the combination formed of the P. & R., L. V. and C. RR of N. J., through the fact that directors in these companies represented parties who were also large holders in the combined system; this was clearly seen to be a fallacy. There were also large tonnages taken over by the purchasing of coal from individual operations on the basis of 60% of the tide-water price. In the month of January the wholesale trade was at an extremely low ebb, both as to prices and general trade conditions; no price-list was adhered to, and there was no agreement made as to any line of policy for the year, so that when the new combine started out in February it was hailed with great rejoicing even by those who were not controlled, for the good and sufficient reason that it meant a great deal more money to them for their output and temporarily at least it would be of advantage for that reason. As usual during March the "opening prices" of the season were made and they compare as follows for five years:

Free-burning coal.	Broken.	Egg.	Stove.	Chestnut.
1888	$3 75	$4 00	$4 25	$4 25
1889	3 75	3 90	4 15	4 00
1890	3 40	3 50	3 50	3 25
1891	3 50	4 60	3 75	3 50
1892	3 65	3 75	3 90	3 65

All these are what are known as circular prices, at the loading ports. They were not always realized, however; the year 1892 proving no particular exception to this rule.

Advances were made throughout the season and until September 1st, see details elsewhere. The figures at the close stood as follows:

Free-burning coal	1888.	1889.	1890.	1891.	1892.
Broken	$3 95	$3 90	$3 75	$3 75	$4 00
Egg	4 30	4 15	4 00	4 15	4 40
Stove	4 65	4 40	4 40	4 40	4 75
Chestnut	4 65	4 15	3 95	4 15	4 65

The very great advances during the year were the object of unusual comment; the fact that the prices were firmly held as made and could not merely be regarded as nominal, from which "cuts" were made, emphasized the fact that coal cost a great deal more money than it did in previous years, in fact it is not too much to say that wholesale rates in the fall of 1892 were nearly one dollar per ton above those of the preceding year on the domestic sizes.

All the Anthracite companies largely increased their business in 1892, with the exception of those allied to the P. & R. system; this was due largely to the fact that it was holding back its own tonnage, as the statistics clearly show. The Lehigh & Wilkes-Barre Coal Co. suffered to so great an extent in this way, although getting a high price for the coal shipped, that it withdrew on the end of year and resumed the sale of its coal. The individuals sending coal to market under the 60% basis had not before realized so high a figure for their output in many years, and they are no doubt anxious for a continuance of that arrangement.

Regarding the Seaboard Soft Coal Association, the facts are that a general meeting of the freight agents was held at the office of the Pennsylvania RR. Co. early in March, at which the outlook of the coal trade was thoroughly discussed, and all the railroads agreed to restore rates to last year's figures, the same to take effect at once, and the Pennsylvania RR. Co. notified its operators that freights had been restored to $1.40 to Philadelphia for tide-water coal, which was the rate in 1891. If the railroads had kept this agreement, it meant that prices would be $2.40 and $2.50 f. o. b. at loading ports, and $3.25 alongside at New York, these being the prices made by the Seaboard Association in 1891 and continued for last season. Prices of soft were, in spite of the above facts, never so low as during a portion of the season of 1892; it was a common thing to hear of certain coal being offered at $2.50 at the loading ports in New York harbor during last summer and this necessarily had a baneful effect on the better grades, the owners of which were endeavoring to get a higher price for their coal, so much so that many of these better grades were not to be had in the usual quantity; in the fall months there was a great scarcity of Bituminous coal and at the close some very high prices were realized for the best grades.

The Retail Coal Exchange of the City of New York continues to grow in activity and usefulness; its membership is said to be 150, and the officers are: Louis Muller, President; C. F. Davies and M. Ehrenreich, Vice-Presidents; John H. Frank, Treasurer; J. Pangburn, Jr., Secretary. Trustees, the officers and A. G. Perham, J. L. Eddy, J. S. Smoot, T. Thedford, R. Gordon, P. Curtis and J. Morrison. The excursion to Montreal, the Thousand Islands, etc., was the great feature of the year's experiences; receptions, dinners, etc., have come to be a matter of course. The price of coal at retail has naturally been advanced with the changes in the wholesale price, and rates finally were made $6.00 per ton delivered for white ash. The dealers came in for a very great deal of unwarranted abuse from the daily press in regard to the higher price put on the coal, but any person of sense knows that they base their price on the cost to them, if they want to make a profit out of the business they are engaged in.

CHICAGO, ILL.

The receipts by lake of Anthracite were as below:

Receivers.	Tons 1890.	Tons 1891.	Tons 1892.
P. & R. C. & I. Co	204,455	243,187	296,056
Lehigh Valley Coal Co	100,300	141,125	....
E. L. Hedstrom & Co	162,924	168,600	200,792
Delaware & Hudson Canal Co	106,080	118,661	160,800
Robert Law	158,442	169,460	193,289
Pennsylvania Coal Co	43,690	61,134	63,464
Peabody Coal Co	66,198	53,497	93,684
W. L. Scott Co	166,311	143,696	176,461
Coxe Bros. & Co	42,745	43,768	44,600
O. S. Richardson & Co	98,205	99,388	141,960
A. T. Thatcher	24,947	39,657	....
Lehigh & Franklin Coal Co	42,554	16,726	....
J. L. Hathaway	12,316	11,448	32,000

In 1892: Sunday Creek Coal Co., 28,893; Baker Bros., 20,000; Dreiske & Heimers, 14,346; sundry small items, 8,892 tons; making a total of 1,475,237 tons by water.

The changes due to the "combination" are seen in the elimination of the Lehigh Valley item for 1892 and the appearance of Reading in the list of receivers, in '90 and '91 the P. &. R. tonnage was handled by the Silver Creek & Morris Coal Co.

Rail receipts of Anthracite: 543,583 tons in '91 and 649,826 tons in 1892.

The statistical position of the trade in this fuel is shown herein:

Anthracite.	1889.	1890.	1891.	1892.
Stock Jan. 1	520,000	460,000	500,000	650,000
Receipts	1,692,385	1,658,284	1,853,885	2,125,063
Total	2,212,325	2,118,284	2,353,885	2,775,063
Stock, Dec. 31	503,000	500,000	600,000	750,000
Net business	1,709,385	1,618,284	1,753,885	2,025,063
Shipments	502,865	576,665	650,000	700,000
"Consumption"	1,206,520	1,041,619	1,103,885	1,325,063

Our representative furnishes the following review of the general trade conditions at this important centre of the fuel industry; it is full and complete:—

The year 1892 opened with an overstocked market on Anthracite, both all-rail and dock coal with the weather conditions entirely against the promise of any speedy relief in the way of new business. The receipts via the lake were 1,310,347 tons and all-rail 543,583 tons=1,853,930 tons for 1891. The Anthracite trade was handicapped from tbe beginning by the heavy stock and Jannary's trade was practically lifeless with the exception of an occasional spurt as the weather got cold. Coal from dock was freely offered at $4.75, the circular being entirely ignored by all the shippers of hard coal. At several of the junction points the tracks were blockaded with all-rail coal and railroads impatient for the removal of it. The 15,000 tons of Anthracite coal thrown on the market at Milwaukee by the Hadfield failure in that city had a bad effect on trade here. February brought with it no relief, and strenuous efforts were made by shippers to unload, but the continuance of mild weather rendered sales slow at very unsatisfactory prices. About the middle of the month a change came over the scene and developed a stronger feeling and the great "combine" was formed which was soon to revolutionize the old methods of doing business in hard coal. The reaction was slow at first and the general public looked on apathetically while those best posted and in the trade felt the new deal—the consolidation of the several largest shippers—would seriously affect them. Nor were they mistaken; a steady advance in the price of Anthracite followed each month until September. The jobbers found that they could make no season contracts and some of them practically ceased to handle coal in any quantity. Spring trade, on account of the continued cold weather, was well maintained up to May, as domestic consumers who had laid in minimum supplies during the previous fall found their supplies running short and were compelled to replenish their stocks. In April the "combine" formally took possession of the docks and plant of the Silver Creek & Morris Coal Co. which they had acquired by purchase in March. On April 14th an important meeting of the Anthracite Association was held in this city and a number of subjects discussed which were of vital importance to the interests of the shippers. Agents from Buffalo, Toledo, Milwaukee and all distributing points in the Northwest attended, and the report of the convention was presented to the Western Anthracite shippers at New York, April 21. While on a train going to this meeting Mr. A. T. Thatcher, one of our most enterprising shippers, met with an accident which caused his death. His sudden and untimely demise spread a gloom over the entire market. Jobbers found they could buy only from month to month at the price ruling for the month, hence all contracts of importance—municipal, State or Government, were handled by the consolidated companies or individual shipper's agents and prices were very close. At the opening of navigation stocks were found to have been considerably reduced as some of the best trade laid in large supplies in April, as a consequence the average monthly sales of May, June and July were greatly reduced. Wholesale trade was light throughout the summer months, and even the best paying retail trade, taking ten to fifty tons, were apathetic. The Missouri and trans-Missouri River trade was inactive and sales generally of meager proportions. Then the non-advance in August had the effect of blocking trade as country dealers and the public viewed it as a sign of weakness. Receipts of coal via the lake were steady and continued well up to the close of navigation. The Buffalo strike interfered with lake and all-rail shipments for a while but did not seriously affect the Anthracite trade here. September 1st another advance was made, bringing the circular up to $6.10, at which price it has remained. A very large tonnage of hard coal was displaced beyond the Missouri by the Colorado semi-Anthracite coal, ranging anywhere from 50 to 75 per cent. according to locality. At the end of September the State Attorney filed an injunction to restrain the "combine" from doing business in Cook County, but failed to make anything of it. Anthracite continued to move slowly all through the fall months, dealers and the public vainly hoping for a disruption of the combine. With the advance of colder weather in December Anthracite began to pick up, though some apprehension was felt that an open winter would find large stocks on hand at end of season. Although no direct cutting was indulged in, some of the shippers appeared to have an unlimited amount of *Grate* coal in stock, but this same Grate bore a wonderful resemblance to Range and Chestnut. The substitution of one size for another at a lower price was common, and towards the end of December Nut coal was somewhat scarce. The year closed with a good demand from nearly all sources.

Soft Coal.—The year opened with a superabundance of all grades of Bituminous coal—Eastern as well as Western. Indiana had only just resumed mining operations after a long strike, notwithstanding which prices ruled low, $1.50 at mine. Supply of Illinois coal was excessive and circular cut no figure at all, and concessions were the rule, in some cases bare cost was obtained to avoid demurrage charges. The "rush" of coal to this market was enormous, as many mine operators believed the absorbing powers of Chicago were illimitable, the inevitable result of which was a glut which lasted for months and margins were lost sight of entirely in the desire to get rid of the stuff. Railroads also failed to take their full quota as they had less grain to haul on account of the wretched condition of the country roads. In March Indiana Block sold at $1.25 at mine, and lower prices were more than hinted at; restricted output from mines relieved the situation somewhat at end of month. Important railroad contracts were placed in April, and prices ruled low; some stimulus was imparted to the trade on account of the discontent and agitation among the miners who were expected to go on strike in May. There were, however, only a few, and those of minor importance. The excessive rain fall early in May somewhat interfered with regular shipments from this and neighboring States. In June the market again presented a glutted appearance and prices suffered. This continued through the summer, and not until September was there any activity in demand and consequent reduction in stock on track. Then followed the usual annual shortage of cars. Owing to the increased cost of Anthracite, demand for soft coal from the country trade was large, and in October the market was in a healthy condition, prices more firm with an upward tendency. At the close of this month the soft coal trade was in a more flourishing condition than it had been for years. Miners were in good demand and scarce in Indiana and Illinois. At all lake points coal was in good demand. The order of the C. & E. I. RR. prohibiting shipment of its cars beyond Chicago to western connecting lines was found to be a great hardship by the trade. In November operators could not begin to fill their orders for coal, and fears were entertained that there would be some stringency. Large orders were obliged to be refused on account of the scarcity of cars. Several small strikes occurred in the Springfield, Ill., district, but were settled without much trouble ensuing. In December steam sizes were selling at an average of 35 per cent. higher than at the same time in 1891. At the close of the year the prosperous condition of the market for soft coal was never exceeded in the history of the trade in Chicago.

Coke.—Demand was steady though quiet all through the year, with very little fluctuation in price. Crushed domestic coke promises to be a factor as a substitute for Anthracite, and the sales have passed the experimental stage.

Taking the totais of receipts of Anthracite, Bituminous and coke, there is the following schedule:—

	Tons 1889.	Tons 1890.	Tons 1891.	Tons 1892.
Anthracite	1,692,385	1,658,284	1,853,885	2,125,063
Bituminous	3,616,876	3,922,985	3,976,554	4,389,258
Coke	813,645	955,227	692,331	816,436
Total net tons	6,122,906	6,546,496	6,522,770	7,330,757

The re-shipments aggregate the following :—

	1889.	1890.	1891.	1892.
Anthracite	502,865	576,665	650,000	700,000
Bituminous	471,127	555,391	400,000	500,000
Coke	232,616	396,287	335,000	370,000
Total	1,206,608	1,528,343	1,385,000	1,570,000

Fuel consumed in this city in the years specified :—

Anthracite	1,206,520	1,041,619	1,203,885	1,325,063
Bituminous	3,145,749	3,307,526	3,576,554	3,889,258
Coke	581,029	568,940	357,331	446,436
Total	4,933,398	4,918,085	5,137,770	5,660,757

These figures are arrived at by deducting the shipments from the receipts, and form as fair a method of computing what is termed "consumption" as can be devised.

Circular prices of Bituminous coals at the close of 1892 were :—

Winifrede, W. Va.	$3 75	Wilmington lump (Ill.)	$2 25
Brazil Block (Ind.)	2 60 @ 2 75	Taylorville lump (Ill.)	2 25
Rosedale lump (Ind.)	2 35	Streator lump (Ill.)	2 00
Minshall lump (Ind.)	2 35	Springfield lump (Ill)	2 00
Briar Hill	4 25	Mount Olive lump (Ill.)	2 00
Pittsburgh lump	3 40	Clair lump (Ill.)	2 00
Youghiogheny lump	3 40	Blossburg smithing	3 90
Jackson Hill, Ohio, lump	3 60	Piedmont smithing	3 70
Hocking Valley, Ohio, lump	3 20	Cumberland smithing	3 70
Shawnee, Ohio, lump	3 20	Sonman smithing	3 65
Sunday Creek, Ohio, lump	3 20	Connellsville coke (foundry)	5 05
New Kentucky	2 90	Connellsville coke (crushed)	5 40
Raymond	3 75	Elk Lick	4 60
Birdseye Cannel	5 50	Walston coke (foundry)	5 00
Cannelburg Cannel	4 00	West Virginia coke	4 60

Prices of Illinois coals, such as Wilmington, La Salle, Mount Olive, Taylorville, etc., at Chicago group points, $2.00 per ton. Streator, $1.90.

Circular prices of Anthracite on cars, 2,000 pounds, Grate $5.85, other sizes $6.10.

ST. PAUL AND MINNEAPOLIS.

A large jobbing trade is done to western points by parties having offices here.

The local consumption of Anthracite is very nearly 80,000 tons at St. Paul and 70,000 tons at Minneapolis. The Bituminous trade is larger but cannot be got at so closely, being irregular. The coal is drawn via Duluth and Superior and there has been a vast increase in the trade from those points in the past year, and this naturally tends to a growth of the coal interest at these points. Prices of Anthracite were higher here as elsewhere, but soft coal was cheaper and the following are closing quotations for 1892.

	On cars Duluth.	St. Paul and Minneapolis.
Grate, Egg, Stove and Nut	$5.85@ $6.10	$7.35
Cargo Pea	4.50@ 5.10	7.60
Brier Hill, Blossburg, Cumberland, etc	4.75	5.25
Mansfield, Pittsburgh, Youghiogheny	3.50	4.40
Hocking, Kincaid, Wheeling Creek	3.25	4.25

CLEVELAND, OHIO.

In the Customs district of CUYAHOGA the clearances of Bituminous coal by lake were as follows:

1887	1,433,035 tons.	1890	2,328,663 tons.
1888	1,855,260 tons.	1891	2,635,461 tons.
1889	2,020,996 tons.	1892	2,733,720 tons.

Details of the past years show the distribution of this tonnage:

CLEVELAND.	Tons 1890.	Tons 1891.	Tons 1892.
Coastwise	880,121	989,044	1,154,058
Foreign	131,698	114,919	....
Fuel	275,358	417,696	437,941
ASHTABULA.			
Coastwise	492,459	241,230	561,446
Foreign	44,334	25,173	....
Fuel	87,535	239,894	107,888
FAIRPORT.			
Coastwise	53,523	123,649	114,738
Foreign	6,477	8,408	....
Fuel	40,000	24,935	....
LORAIN.			
Coastwise	298,444	273,036	352,000
Foreign	15,914	16,701	....
Fuel	1,500	160,776	5,469

Receipts of coal and coke at Cleveland were as below in the years named:

1887	1,746,437 tons.	1890	1,960,591 tons.
1888	2,044,059 tons.	1891	3,230,153 tons.
1889	1,910,000 tons.	1892	4,261,757 tons.

The coal and coke receipts were divided as follows as to qualities:

Receipts.	Tons 1889.	Tons 1890.	Tons 1891.	Tons 1892.
Bituminous	1,600,000	1,560,208	2,838,586	3,651,080
Anthracite	160,000	205,586	201,927	259,150
Coke	150,000	194,527	189,640	351,527
Total	1,910,000	1,960,591	3,230,153	4,261,757
The shipments were:—				
Anthracite rail	25,000	29,056	34,910	50,742
Bituminous rail	600,000	785,526	941,564	1,109,787
Bituminous lake	1,100,000	1,200,000	1,525,000	1,591,999
Total	1,725,000	1,814,582	2,501,474	2,752,528

Prices at end of years 1891 and 1892:

	1891.	1892.		1891.	1892.
Massillon	$2 40	$2 40	Goshen	$1 85	$1 85
Palmyra	2 75	2 75	Sherrodsville	1 70	1 70
Pittsburgh	2 10	2 10	Osnaburg	1 80	1 80
Salineville	1 70	1 70	Coshocton	2 10	2 10
Kentucky Cannel	4 75	4 75	Hocking	1 90	1 90

Anthracite at end of 1892—Grate, $6.00; Egg, Stove, Chestnut, $6.25 per ton delivered.

The shipments of Anthracite by lake from Erie, Pa., during 1892, amounted to 378,067 tons, and of Bituminous to 103,698 tons.

DULUTH AND SUPERIOR.

No one seems to know how much coal is received at these points; the Collector of Customs puts those at Superior at 1,139,224 tons, but the City Statistician writes:—"These figures do not tell the full trade but are short by a good many thousand tons. The situation, as you probably understand, is such that vessels frequently enter their papers at Duluth and discharge their cargoes at Superior. I have estimated by the best sources at hand that the figures in the port collector's report are at least 150,000 tons short. We trust that in your summary the coal trade of Superior will be fully and fairly shown up. There has been a large increase during the last year, two new companies have started in operation and two or three more are figuring for a location." A local paper makes the figures 1,645,323 tons. At the same time one of the best informed persons in the business at Duluth, writes that "it is difficult to get the actual receipts at this point, but from best information we can get, the receipts for the year as per custom house, show 885,266 tons, while those given in by the different companies show 1,168,068. My own impression is that the former figure is nearer correct than the latter, but believe the receipts to be somewhat above the first named figure. The receipts at West Superior do not very materially differ from these, but presume they are somewhat larger; from fifty to one hundred thousand tons."

It is unfortunate for all concerned that the bitter jealousies of the two places leads to such a state of affairs in regard to the statistics of these important points of distribution.

During the past season the Northwestern Fuel Co. has been restricted from using one of its docks, but the increase in its business is large nevertheless. The next season will see three new coal docks in operation—one each at Superior, West Duluth and Duluth.

FAIR HAVEN AND SODUS POINT, N. Y.

At Sodus Point the shipments in 1887 were 31,978 tons Anthracite and 9,560 tons Bituminous; in 1888 the total was 81,291 tons; in 1889, "very light;" in 1890, 16,158 tons; in 1891, 16,705 Anthracite and 2,203 soft coal; in 1892, 16,786 gross tons Anthracite and 43,538 net tons of Bituminous.

At Fair Haven shipments of Anthracite have been as follows:—1886, 55,591 tons; 1887, 96,942 tons; 1888, 155,000 tons; in 1889, 132,000 tons; in 1890, 120,000 tons; in 1891, 115,849 tons, and in 1892, 113,945 tons.

PROVIDENCE, R. I.

Receipts, in tons of 2,240 pounds, have been, in the years named:—

1887	1,043,905 tons.	1890	871,437 tons.
1888	1,061,237 tons.	1891	850,000 tons.
1889	900,000 tons.	1892	850,000 tons.

This does not include the coal which went to Pawtucket, which amounted to something like 123,811 tons in 1890, and 134,564 tons in 1891.

In 1892 the totals are said to be 136,234 tons to Pawtucket, and 850,000 tons to Providence.

TOLEDO, OHIO.

We are informed that the quantity of coal received here was, in the years specified, as below:

1887	2,695,710 tons.	1890	3,021,886 tons.
1888	3,423,785 tons.	1891	2,754,943 tons.
1889	2,838,314 tons.	1892	2,291,355 tons.

Route.	Tons 1890.	Tons 1891.	Tons 1892.
Wabash Ry	3,620	600	500
L. S. & M. S. RR	20,592	8,872	43,252
C., H. & D. RR	25,753	35,356	82,053
Penna. Co	214,765	172,325	92,894
M. C. RR	3,152	544	420
C., H. V. & T. Ry	931,717	604,039	394,895
T., St. L. & K. C. RR	8,420	6,891	5,041
T. & Ohio Central Ry	826,049	800,429	450,000
Wheeling & Lake Erie Ry	853,940	1,007,042	1,080,000
T., C. & E. Ry	....	35,065	30,000
C., J. & M. RR	65	....	101
Lake (Anthracite)	133,813	83,800	112,199
Total net tons	3,021,886	2,754,943	2,291,355

Shipments by lake are put at 650,000 tons in 1889, 920,000 tons in 1890, 1,071-046 tons in 1891, and 750,000 tons in 1892. This does not include any coal for fueling purposes.

At the close of the year prices ranged about: Hocking Valley lump, $2.40; run of mine, $2.75; nut, $2.00; Massillon lump, $2.40; Massillon nut, $2.75; Jackson lump, $2.60; Cannel, $3.25; Jackson run of mine, $2.25; Jackson nut, $2.00.

SALT LAKE CITY, UTAH.

During the year 1891 the following coals were disposed of in Salt Lake City: Union Pacific coal department, 36,175; Pleasant Valley Coal Co., 36,000; Rock Springs Coal Co., 35,950; Anthracite, 5,190; Consumers' Coal Co., 5,000; Home Coal Co., 3,000; Van Dyke Coal Co., 1,000; Blacksmith coal, Eastern, 800; Charcoal, 550; Coke, 500; Black Buttes, 275. Total, 124,440 tons.

During the year 1892 the figures were: Rock Springs, 52,442; other Wyoming coal, 22,000; Pleasant Valley Co., 46,000; U. P. P. V. coal, 8,000; Coalville, 10,000; Eastern soft for blacksmith use, 900; Coke, 550; Anthracite, 640; or a total of 130,532 tons. Lump sells at $4.50@$4.75 at the yard, and slack at $2.50 per ton. Anthracite (Colorado) retails at $10.00 per ton.

TORONTO, CANADA.

Following are the comparative figures of receipts for the years specified:—

Receipts.	1888.	1889.	1890.	1891.	1892.
Anthracite	337,350	302,920	280,761	300,371	333,556
Bituminous	177,514	167,915	181,985	198,958	215,993
Total (tons)	514,864	470,835	462,746	499,330	549,549

Anthracite is admitted duty free, while soft coal (from the United States) pays 60 cents per ton duty.

The value put on all the coal received in 1892 was $1,776,354.

OSWEGO, N. Y.

In 1886 there were 375,035 tons of Anthracite and 7,654 tons of Bituminous shipped; in 1887 there were 500,000 tons Anthracite, while for 1888 the total quantity of Anthracite shipped is put at 485,000 tons, and in 1889 it is reported at 668,859 tons Anthracite and 1,260 tons Bituminous. The total receipts for 1890 were 658,640 tons Anthracite; in 1891, say 700,000 tons, and in 1892 650,000 tons.

The shipments by water were:—

	Tons 1891.	Tons 1892.
Through the Welland Canal (Anthracite)	119,235	140,993
Coastwise on Lake Ontario (Anthracite)	22,385	22,236
To Canadian ports (Anthracite)	338,138	271,431
Total shipments	529,758	434,660
Received at this port (Bituminous)	1,915	....

CHARLOTTE, N. Y.

1885	176,101 Anthracite and 56,963 Bituminous.
1886	198,247 Anthracite and 39,955 Bituminous.
1887	292,563 tons in all.
1888	304,263 tons in all.
1889	350,000 tons in all.
1890	350,200 tons in all.
1891	158,294 Anthracite and 255,431 Bituminous.
1892	428,107 tons in all.

The Custom House returns show 19,031 gross tons of Anthracite to domestic ports, and 96,577 tons to foreign ports in the past year.

BUFFALO, N. Y.

Changes in the destination of the Anthracite shipped at this city, so far as the principal ports are concerned, have been as below in the years named:—

	1888.	1889.	1890.	1891.	1892.
Chicago	1,023,649	988,750	952,280	957,805	1,179,635
Milwaukee	549,831	497,895	451,550	508,140	715,975
Duluth	282,106	160,430	199,230	257,625	318,580
Superior	120,000	112,450	127,300	163,075	200,680
Toledo	83,850	52,725	96,230	64,620	102,525
Gladstone	39,575	36,520	30,215	35,170	52,500
Racine	29,695	33,410	29,130	30,510	34,020
Detroit	35,330	31,890	40,065	24,560	22,500
Green Bay	26,345	25,050	22,380	29,015	35,300
To other places.	179,525	142,216	131,390	295,375	190,615
Total	2,369,906	2,081,336	2,079,770	2,365,895	2,852,330

The shipments were larger than during any year and yet it may be said that all the coal will be burned before navigation opens again, leaving the docks at the upper ports clear to receive even a larger quantity during the season of 1893. The ports of Duluth and Superior ought really to be considered as one. Many boats clear for either indifferently and visit both for the purpose of unloading some part of their cargo. This is especially true of such as carry both coal and package freight, and it makes it impossible to keep the shipments of coal to these ports apart. The same is true of Port Arthur and Fort William.

Canal receipts and shipments:—

	1888.	1889.	1890.	1891.	1892.
Anthracite received	149,474	100,885	41,265	817	54,760
Bituminous shipped	7,452	11,673	25,872	34,060	29,216

Lake opened April 7. Erie Canal opened May 1 and closed December 5, 1892. Freights were very low; Chicago was 40 cents from opening to May 13; 60 cents to August 25; 55 cents to October 5; 75 cents to close. Duluth opened at 30 cents, shifted to 20, 25 and 35 cents until November 8; some business was done at $1.00 after that.

The tonnage of Bituminous coal handled at this port is very large, but the details of the receipts and shipments are not furnished by the carrying companies, so that the best figures which can be furnished are those which follow:—

Receipts (Tons).	1888.	1889.	1890.	1891.	1892.
Anthracite	4,549,015	4,338,570	4,500,000	4,800,000	5,250,000
Bituminous	1,892,823	2,198,327	2,200,000	2,450,000	2,600,000
Blossburg	22,500	22,500	25,500	25,000	25,000
Shipments.					
Bituminous	7,452	11,673	25,872	34,066	29,216
Anthracite	2,541,905	2,151,670	2,157,810	2,365,895	2,852,330
Blossburg	5,000	5,000	5,000	5,000	5,000

Shipments of Anthracite by rail West or to Canada are not reported, but under new customs regulations it is hoped that those to Canada (as well as the Bituminous shipments thereto) will be collected hereafter.

Prices of all coals were higher; the Anthracite, due to the concentration of interests entered into in the early part of the year, and the Bituminous, due to a better demand for steam coal. We quote at the close of the year as follows per net ton on cars, to consumers:—

BRIER HILL REGION.

No. 1 Lump	$3 35
No. 2 Lump	3 10

CANNEL (OHIO).

No. 1	4 25

REYNOLDSVILLE REGION.

Screened Lump	$2 35
Lump and Nut, mixed	2 25
Run of Mines	2 10
Screened Nut	2 10
Nut and Slack, mixed	1 90
Slack	1 70

LOW GRADE DIV. OF A. V. RR.

Screened Lump	$2 15
Lump and Nut, mixed	2 05
Run of Mines	1 90
Screened Nut	1 90
Nut and Slack, mixed	1 70
Slack	1 50

PITTSBURGH REGION OF A. V. RR.

Screened Lump	$2 40
Lump and Nut, mixed	2 30
Run of Mines	2 20

MERCER COUNTY REGION.

Screened Lump	$2 25
Lump and Nut, mixed	2 15
Run of Mines	2 00
Screened Nut	2 00
Slack	1 50

A. V. RR. RIVER DIV. REGION.

Screened Lump	$2 15
Screened Lump and Nut, mixed	2 15
Run of Mines	1 90
Nut and Slack, mixed	1 70
Slack	1 50

COKE.

Connellsville Coke	$4 30
Reynoldsville Coke	3 75

ANTHRACITE.

Stove	$4 73
Chestnut	4 73
Grate	4 51
Egg	4 73

MILWAUKEE, WIS.

Receipts by lake in 1892, as reported by each dealer:

Dealer.	Anthracite.	Bituminous.	Total.
N. W. Fuel Co	191,470	56,728	248,189
H. M. Benjamin	130,420	43,662	174,082
Phil. & Read. C. & I. Co	149,758	6,970	156,728
Coxe Bros. & Co	108,416	20,159	125,875
R. P. Elmore & Co	63,672	5,468	69,140
Lehigh & Franklin Co	20,847	32,185	53,032
Penn. Coal Co	40,503	2,339	42,842
B. Uhrig & Son	30,077	12,045	42,122
Whithall & Rademaker	36,053	....	36,053
L. Henes Jr. & Co	15,129	5,656	20,785
J. Gross & Sons	23,318	1,272	24,590
Dan Orth & Co	9,743	2,096	11,839
Brigham & Co	....	32,630	32,630
Eastman Coal Co	12,336	6,293	18,629
J. Christiansen & Co	5,428	....	5,428
Chas. F. Haase Coal Co	6,853	....	6,853
Milwaukee Coal Co	21,373	1,650	23,023
Schlitz Br'g Co	....	13,271	13,271
Milwaukee Gas Co	....	21,554	21,554
D. W. Howie	....	13,134	13,134
John Pynchon	....	17,031	17,031
Sunday Creek Coal Co	....	6,550	6,550
Miscellaneous	....	19,730	19,730
Total tonnage for 1892	862,696	320,423	1,183,119
Total for year 1891	762,735	243,921	1,006,656

The Chamber of Commerce reports a total of 1,208,773 tons by lake; they also report 163,549 tons of Bituminous by rail, this gives total receipts of 1,372,322 tons; in 1891 it was 1,156,033 tons, so that there was an increase of 216,289 tons mainly on Anthracite coal.

SAN FRANCISCO, CAL.

Mr. J. W. Harrison reports receipts of coal as follows:

	Tons 1890.	Tons 1891.	Tons 1892.
British Columbia	441,759	652,657	554,600
Australia	194,725	321,197	314,280
English and Welsh	35,662	168,586	210,660
Scotch	1,610	31,840	24,900
Eastern (Cumberland and Anthracite)	32,550	42,210	35,720
Franklin, Green River and Cedar River	216,760	178,230	164,930
Carbon Hill and South Prairie	191,109	196,750	218,390
Mount Diablo and Coos Bay	74,210	90,684	66,150
Japan, etc	13,170	20,679	4,220
Total	1,204,555	1,702,833	1,593,850

To insure a correct statement of the consumption of the State, there is included all the arrivals (by water) at San Pedro and San Diego, amounting to 158,600 tons.

ST. LOUIS, MO.

Receipts have been as follows:

	1888.	1889.	1890.	1891.	1892.
Bituminous	2,357,938	1,909,227	1,915,960	2,183,640	2,400,000
Coke	134,660	147,750	162,940	98,660	139,255
Anthracite	136,290	121,530	124,335	139,050	162,740
Total net tons	2,628,888	2,178,507	2,205,235	2,421,350	2,701,995

For the year ending December 31st, 1892, the receipts were:

Route.	Bituminous. Bushels.	Anthracite. Tons.	Coke. Tons.
C. C. C. & St. L.	3,341,814	58,195	25,500
Wabash R'y	5,574,006	21,775	......
O. & M.	5,771,821	......	......
L. & N.	5,676,321	......	47,930
L. E. & St. L.	8,413,718	......	......
Vandalia	8,235,014	8,615	65,735
St. L. A. & T. H.	9,703,313	......	......
do Carondelet	1,278,107	......	......
M. & O.	4,195,061	......	......
C. & A.	650,000	20,035	......
Tol., St. L. & K. C.	3,590,027	54,120	......
St. L. and Eastern	5,452,805	......	......
J. S. E. Line	2,117,993	......	......
Totals	64,000,000	162,740	139,255

NORFOLK, VA.

Coal loaded at Lambert's Point pier of the N. & W. RR. Co. was 504,153 tons in 1886, 661,552 tons in 1887, 883,759 tons in 1888, 1,013,214 tons in 1889, 1,152,507 tons in 1890, 1,468,473 tons in 1891 and 1,654,297 tons in 1892.

Details for the two years:—

	Tons 1891.	Tons 1892.
Foreign	29,997	25,653
Steamers	135,112	129,627
Coastwise	1,196,248	1,400,983
Local	90,606	98,033

THE WYOMING COAL FIELD—PENNSLYVANIA.

In the past year Mr. William Griffith, C. E., M. E., of Scranton, made an estimate showing the approximate quantity and the past and probable future production of coal in the several districts of the northern Anthracite coal field. The conclusion reached is that at the rate of 24,000,000 tons (nearly the total of 23,629,-083 tons for the year 1891) annual output, there is sufficient coal to last ninety-nine years. Mr. Griffith by this statement shows that in the past nearly 60 per cent. of the coal originally in the ground has been won—this includes shipments and local consumption. He thinks the future production cannot well be expected to much exceed 53 per cent. of the coal remaining in the ground, but this may be increased somewhat by improvements in the method of mining, but as most of the coal remaining is at the lower end of the field, where the measures are deep and gaseous, some radical change in methods will be necessary to materially increase the percentage stated. The large yield of 60 per cent. in the past, as shown by the table, may be partially accounted for by the fact that the coal has been mined from the margin of the field and points where it is not so deep and the surface of little value, so that more coal per acre could be taken out. According to Mr. Griffith's deductions the several minor divisions of the field will, at the present rate of production, last the following length of time:

Output in 1891.	District.	Time of exhaustion, excluding thin seams not now worked.
1,009,818 tons.	Forest City and Carbondale	70 years.
1,381,817 tons.	Jermyn	14 years.
540,961 tons.	Archbald	21 years.
1,301,590 tons.	Peckville and Olyphant	75 years.
6,193,390 tons.	Scranton	53 years.
3,777,802 tons.	Pittston	80 years.
7,312,687 tons.	Wilkes-Barre and Plymouth	127 years.
2,111,018 tons.	Naticoke and lower end	121 years.

Of course, as the northern districts are exhausted, the production will be greatly increased in the lower end of the basin. A large percentage of the coal north of Scranton is in thin beds that have not yet been worked to any great extent, and in this portion of the field more robbing can be done, as the beds are not deep, and the surface is not very valuable. This statement makes plain the relations existing between the figures in the above table.

NORTHERN PACIFIC COAL CO.

The production of coal at the mines of this company has been as below:—

	1887.	1888.	1889.	1890.	1891.	1892.
Sims, Dakota	8,470	....	....	....	....	....
Timberline, Mon.	7,802	9,867	....	....	....	....
Roslyn, Wash.	104,677	173,157	238,431	445,202	362,888	271,513

The mine at Sims has been abandoned since September, 1887; at Timberline since May 31, 1888.

The output of coal in Sweden during the year 1890, is reported to have been 2,343,895 tons.

ENGLAND'S COAL TRADE WITH AMERICA.

Shipments to countries specified during the calendar year 1891.

Countries.	Coal.	Coke.	Patent Fuel	Total.
United States of America:				
On the Atlantic	28,492	....	....	28,492
On the Pacific	264,194	46,731	....	310,925
Bermudas	5,070	25	....	5,095
British West Indies	152,473	65	15,680	168,218
Foreign West Indies	116,984	290	1,566	118,840
Mexico	31,238	15,099	58,940	105,277
Central America	10,792	....	....	10,792
United States of Columbia	1,877	....	355	2,232
Venezuela	1,446	8,670	22,541	32,657
Ecuador	3,101	....	....	3,101
Peru	47,463	565	....	48,028
Chili	276,219	18,707	34,573	329,499
Brazil	741,654	7,928	48,740	798,322
Uruguay	227,597	864	....	228,461
Argentine Republic	415,490	2,432	3,561	421,483
Falkland Islands	752	....	....	752
Whale Fisheries, Northern	10	....	....	10
Total exports from Great Britain for 1891 to all countries	29,496,785	859,543	727,788	31,084,116
Totals for previous year	28,738,241	732,375	672,223	30,142,839

Below is the scale of wages adopted by the Indiana Bituminous coal operators, and the men employed by them:—The price for day work in the mine, for practical men, shall be 21½ cents per hour. The price for pick mining shall be 70 cents per ton. The price for mining with Harrison or Sargent machines, including cutting, drilling, shooting and loading, together with the usual care of room, shall be as heretofore. 52½ cents per ton, and narrow work to be paid for as at present. The price for mining with the Legg machine shall be 13 cents per ton from rooms, and 15 cents a ton from entries. The price for shooting and loading after Legg machines, including the usual care of rooms, shall be 31½ cents per ton in rooms, and 37 cents per ton in entries. Price of mining and all settlements therefor shall be based on the weight of screened coal for its equivalent. Payments on coal mined and labor performed shall be made semi-monthly, not later than the 15th and 25th of each month for the earnings of the preceding half-month respectively.

Italian Lignite.—The British Consul at Rome, in his commercial report for the years 1890 and 1891, states that during late years a good deal has been heard of Italian lignite, attempts having been made to utilise it by means of a process of distillation, as a substitute for coal on a large scale, and also to extract from it illuminating gas. The Government have in various ways encouraged and assisted the production of lignite, even to reducing to the minimum the railway freight for the material; but from a report recently published by the Ministry of Agriculture, the Consul gathers that up to the present it cannot be said that any very great success has attended such endeavours.

MANITOBA COAL DEPOSITS.

The Winnipeg 'Commercial' says that the recent discovery of coal in Prince Albert district is a matter of very great importance to a large section of country. If the deposit is at all as valuable as expected, it is a matter upon which the people of all Manitoba and adjacent country may be congratulated. A few years ago the fuel supply of western Canada was considered a question of the greatest moment. The discovery of vast coal beds in the west greatly relieved the anxiety regarding the fuel supply of the future. As these discoveries went on, it was finally decided that the fuel question had been favorably solved. There remained, however, a difficulty even after the discoveries had been made. The great coal beds were all away west, and the transportation by rail of the coal from the west to the eastern portions of the prairie country would increase the cost of the commodity considerably. While the coal could be handled and transported more cheaply than wood, the long railway haul would make the cost a considerable item. The construction of a railway to the Souris coal region opened the most convenient source of supply for the eastern part of the country. These mines are not sufficiently developed yet to allow of a confident expression as to their value. The location of this coal territory, however, is exceedingly favorable, and if the supply comes up to expectations, the southeastern portion of the prarie region will be assured cheap fuel. The west is already abundantly supplied with coal of excellent qualities, and unlimited quantities. If the recent discoveries in the Prince Albert district prove extensive, the result will be the opening of coal mines in the north central region. Another great feature about this latter find is the fact that it is convenient to navigable water. It is on the banks of the great North Saskatchewan River, which is navigable for 1,000 miles, and is tributary to Lake Winnipeg and the Red River. With a slight expenditure in improving navigation, coal could be laid down at Winnipeg, by water from Prince Albert, at a low cost. An abundant supply of good coal at any convenient point convenient to the Lake Winnipeg system of navigation, would be a great thing for Winnipeg, as well as for other parts of the country.

MISSOURI PACIFIC RAILWAY COAL TRADE.

The production at the mines of the coal companies allied to this railway company has been as below:

Company.	1889.	1890.	1891.	1892.
Atoka Coal and Mining Co........	295,761	256,983	288,686	250,298
Osage Coal and Mining Co.........	376,498	348,478	386,469	272,101
Western Coal and Mining Co.....	288,942	374,361	449,751	484,396
Lexington Coal Mining Co.........	130,680	145,385	123,743	136,484
Rich Hill Coal Mining Co..........	398,049	485,457	535,952	528,480
Total coal.........................	1,489,930	1,610,664	1,784,602	1,671,759
Osage C. & M. Co.—Coke.........	7,500	10,000	10,000	....
Total coal and coke	1,497,430	1,620,664	1,794,602	1,671,759

An Anthracite mined at Tonkin is said to show 86.114 fixed carbon.

PENNSYLVANIA RAILROAD TONNAGES.

In the annual report for 1891 are many facts and figures of interest in connection with the coal trade.

ANTHRACITE MINING COMPANIES' TONNAGES:

	1891.	1890.
Susquehanna Coal Co.	1,469,489	1,453,365
Summit Branch RR. Co.	356,720	303,436
Lykens Valley Coal Co.	268,076	274,052
Mineral RR. & M. Co.	503,644	318,050

COAL MOVED IN 1891, ON MAIN LINE:

Anthracite coal	4,188,343 tons.
Bituminous coal	13,002,808 tons.
Coke	4,740,215 tons.

UNITED RR. OF N. J. DIVISION:

Anthracite coal	4,304,378 tons.
Bituminous coal	3,432,514 tons.
Coke	97,590 tons.

PHILADELPHIA & ERIE DIVISION:

Anthracite coal	3,897,446 tons.
Bituminons coal	4,359,714 tons.
Coke	223,129 tons.

LOADED AT GREENWICH PIERS.

	1891.	1890.
Bituminous coal	2,242,897	1,647,012
Gas coal	202,769	70,818
Anthracite	110,358	81,141
Coke	3,913	3,913

LOADED AT SOUTH AMBOY:

	1891.	1890.
Anthracite	1,295,325	959,267
Bituminous	1,544,323	1,525,298

AT HARSIMUS PIER:

	1891.	1890.
Bituminous coal	1,106,514	1,062,547

AVERAGE TOLLS TO TIDE.

The average rate of toll per ton, from mines in the Lehigh district to tide-water shipping ports, was as below in the years specified :—

1881	$1 90	1887	$1 53
1882	1 87	1888	1 76
1883	1 90	1889	1 75
1884	1 78	1890	1 70
1885	1 49	1891	1 70
1886	1 38	1892	1 70

These are said to be the tolls on prepared sizes; Pea was said to have been carried at $1.40 during the past year; Buckwheat was carried at $1.20.

During the past year there was but one change; an advance of 15 cents a ton on September 1, but this was operative from but few collieries; coal was carried at 40% of the tide-water price in many instances.

CANADIAN COAL TRADE WITH THE UNITED STATES.

SALES OF NOVA SCOTIA coal have been as below:

1885	1,254,510 tons.
1886	1,373,666 tons.
1887	1,519,684 tons.
1888	1,576,692 tons.
1889	1,555,107 tons.
1890	1,786,111 tons.
1891	1,849,945 tons.

Of which there was consigned to the *United States.*

1885	34,483 tons.
1886	66,003 tons.
1887	73,892 tons.
1888	30,198 tons.
1889	29,986 tons.
1890	50,754 tons.
1891	25,431 tons.

OUTPUT OF BRITISH COLUMBIA COAL.

1886	326,636 tons.
1887	413,360 tons.
1888	489,300 tons.
1889	579,830 tons.
1890	488,157 tons.
1891	988,132 tons.
1892	1,029,097 tons.

Sales to the *United States* of BRITISH COLUMBIA coal, as indicated by the receipts at San Francisco, have been as below:

1886	189,056 tons.
1887	251,668 tons.
1888	298,515 tons.
1889	381,460 tons.
1890	345,252 tons.
1891	652,657 tons.
1892	554,600 tons.

LAKE SHIPMENTS OF BITUMINOUS COAL—1891.

Reported by Lake Carriers' Association.

Lake Erie ports.	Ohio Coal.	Pennsylvania.	West Virginia.	Total.
Erie	....	89,310	....	89,310
Ashtabula	....	386,375	....	386,375
Fairport	....	66,914	....	66,914
Cleveland	290,585	601,902	124,000	1,016,487
Lorain	253,539	8,447	26,825	288,811
Huron	200,000	....	....	200,000
Sandusky	157,571	....	....	157,571
Toledo	947,288	....	....	947,288
Total	1,848,983	1,125,948	150,825	3,152,706

An English writer says that in no branch of industry was the scarcity of wood more keenly felt than in the smelting of metalliferous ores. Continued efforts to accomplish this with coal began immediately after the assession of James I., and were persevered in throughout the seventeenth century. But for a prolonged period the new fuel proved highly intractable, and scheme after scheme ended in failure and disappointment. After 80 years of oft-repeated trials the tantalizing problem remained unsolved. Wood and charcoal still held the field in the smelting furnaces, and all hope of ever seeing coal substituted for them had well nigh died out. In 1686 Sir John Pettus, in his "Essays on Words Metallick," concludes his observations regarding sea coal and pit coal with the remark, "These are not useful to metals."

PRODUCTION OF COAL IN THE WORLD.

The following table shows the total output of coal in the world, so far as figures are attainable:—

Countries.	Tons 1887.	Tons 1888.	Tons 1889.	Tons 1890.	Tons 1891.
Great Britain........	162,119,812	169,935,219	176,916,724	181,614,288	185,479,126
United States........	120,146,738	132,548,844	132,419,342	140,032,263	149,752,418
Germany..............	76,115,400	76,863,811	84,341,337	87,290,834	94,352,278
France................	21,403,049	22,380,813	24,588,800	26,327,008	26,250,000
Belgium..............	18,316,031	18,500,000	19,810,118	20,565,960	19,675,644
Austria-Hungary...	18,500,000	19,000,000	23,500,000	25,375,961	24,260,122
Russia..................	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
Spain....................	1,000,000	1,000,000	1,000,000	1,210,082	1,314,147
Nova Scotia..........	1,700,000	1,800,000	2,000,000	2,000,000	2,000,000
Other countries.....	7,000,000	8,500,000	9,000,000	10,000,000	11,000,000
Totals............	431,301,030	455,528,687	468,576,321	499,416,396	519,083,731

New Zealand is credited with 668,794 tons in 1891, as against 637,397 tons in 1890.

Spain in 1891—1,286,000 tons coal and 28,147 tons lignite; imports amounted to 2,110,310 tons of coal and coke.

Italy in 1891—5,593,000 tons, against 506,700 tons in 1890.

New South Wales in 1891—4,037,929 tons as against 3,060,876 tons in 1890.

Austria in 1891—8,931,065 tons coal and 15,329,057 tons lignite, against 9,192,885 tons and 16,183,076 tons respectively in 1890.

German Empire in 1891—73,715,653 tons coal and 20,536,625 tons lignite, against 70,237,808 tons and 19,053,026 tons in 1890 respectively.

Prussia produced in 1891, according to *Stahl und Eisen*, 67,528,311 tons of coal and 16,818,845 tons of lignite, giving employment to 233,308 and 26,536 miners respectively.

Sweden in 1890—2,343,895 tons coal.

India in 1890—2,168,000 tons coal.

BRITISH COLUMBIA.

The year 1892 was marked by considerable activity in prospecting for and developing to a greater or less extent of a number of new bodies of coal. The coming season will no doubt see a large amount of active work done on the new locations and a number of good fields will be opened up and added to the already vast coal wealth of British Columbia.

Last season some very encouraging finds were made on Cumshewa Inlet, on Moresby Island, and a number of fine fossils and other indications secured. Of these Mr. A. L. Poudrier, the well-known expert, said that judging from the age of the fossils and their location he had no doubt but that valuable beds of Anthracite coal would be found in that locality.

On Graham Island, in the Queen Charlotte group, a number of valuable seams were prospected thoroughly, their enduring nature demonstrated, and preparations made for further developments during the coming season.

Experts who have examined the coal fields of British Columbia are unanimous in the opinion that they are the best they have ever seen. They pronounce the beds to be of unusual thickness and of superior quality. First-class steam, gas, coking and domestic coals abound and, with a development yet in its infancy, who can say what the year 1893 may bring forth along the line of this important industry?

The first discovery on the island of coal was in 1835, when the *Beaver*, the pioneer steamer in Pacific waters, found outcroppings of coal and used it. The Hudson Bay Co. began mining in 1851 at Fort Rupert, near the north end of the island, but for several reasons these mines were abandoned. In 1852 coal was discovered near Nanaimo and the Hudson Bay Co. began mining there in 1853. In 1862 the Nanaimo mines passed into the hands of the New Vancouver Coal and Land Co. After many vicissitudes the company was successful. One of the shafts of this company is down 650 feet and is tunneled out under the sea over 3,000 yards. A shaft has been sunk 670 feet on Protection Island to meet the tunnel and then it is intended to work seaward. This mine has ten miles of drift passages and slopes. The veins of coal average from six to ten feet in thickness. The Wellington colliery was opened in 1869 by Robert Dunsmuir and three officers of the British navy. Nine years afterwards Dunsmuir bought his partners out for $750,000. His estate owns the property now.

The Union colliery produced 93,826 tons in 1892, the Wellington collieries 276,118 tons, and the New Vancouver CM. Co. 433,298 tons, making a total of 803,242 tons.

Taking the past three decades, it appears that the output of 1871 increased from 13,774 to 35,643 tons as compared with 1861. In 1881 the output ran up to 228,357 tons, increasing to 1,929,097 tons in 1891. There was a large falling eff in 1892 owing to a long and vexatious strike.

The output of the different collieries for the years 1888–92 was as follows:

Collieries.	1888.	1889.	1890.	1891.	1892.
Nanaimo	258,817	223,870	389,505	527,457	433,298
Wellington	198,392	273,383	174,499	345,182	276,118
East Wellington	30,092	51,372	44,602	41,666	....
Union	2,000	31,204	69,537	114,792	93,826
Total	489,301	579,830	678,140	1,029,097	803,242

Analysis of the Wellington coal showed—.4 water; 32.6 vol. matter; 54.6 fixed carbon and 8.8 ash. Of the Nanaimo, 4.6 water; 33.7 vol. matter; 54.7 fixed carbon and 7. ash.

"The working days of different nations" forms the subject of some interesting data given by a Polish statistician in the *Lodz Gazette*. Orthodox Russia, with her numerous saints' days and secular holidays, naturally stands at the head of the list as the least laborious of civilized nations. The names of the countries enumerated, with the number of their statutory working days, are thus given: Interior Russia 267, Canada (P. Q.) 278, Scotland 275, England 278, Portugal 283, Russian Poland 288, Spain 290, Austria and the Russian Baltic Provinces 295, Italy 298, Bavaria, Belgium, Brazil and Luxemberg 300, Saxony, France, Finland, Wurtemberg, Switzerland, Denmark and Norway 302, Sweden 304, Prussia and Ireland 305, United States 306, Holland 308, and Hungary 312.

PRODUCTION OF PIG IRON.

States.	1889.	1890.	1891.	1892.
Maine	5,200	1,200	....	....
Massachusetts	7,751	5,531	10,069	7,946
Connecticut	24,143	22,552	24,428	17,107
New York	297,247	369,381	352,925	310,395
New Jersey	125,693	177,788	103,589	87,975
Pennsylvania	4,181,242	4,945,169	4,426,673	4,193,805
Maryland	33,847	165,559	138,206	99,131
Virginia	251,356	327,912	330,727	342,847
North Carolina	2,898	3,181	3,603	2,908
Georgia	27,559	32,687	55,841	9,950
Alabama	791,425	914,940	891,154	915,296
Texas	4,544	10,865	20,902	8,613
West Virginia	117,900	144,970	96,637	154,973
Kentucky	42,518	53,604	50,225	56,548
Tennessee	294,655	299,741	326,747	300,081
Ohio	1,215,572	1,389,170	1,159,215	1,221,913
Indiana	9,839	16,398	8,657	7,700
Illinois	601,035	785,239	749,506	949,450
Michigan	214,356	258,461	238,722	184,421
Wisconsin	158,634	246,237	220,819	174,961
Missouri	86,190	100,550	32,736	14,071
Minnesota	....	....	1,373	57,020
Colorado	2,678	23,588	20,290	32,441
Oregon	9,426	12.305	10,411	7,628
Washington	10,371	....	....	....
Total tons 2,000 lbs	8,516,079	10,307,028	9,273,455	9,157,000

Reported by the American Iron and Steel Association.

CHILIAN LIGNITES.

In the province of Bio-Bio, near Concepcion, at Lota, Coronel, Arauco, and Lebu it is said that the principal mines exist. Carboniferous deposits are also met with near Valdaivia, and to the south of the Island of Chiloe, in the Island of Huafo, and even near the Magellan Straits; but the last-named mines have not been worked. These lignites are of various quality, and are capable of several uses, competing with European coal. At Lebu, one of the mining centres, the lignite is washed mechanically, yielding a good product. Analysis of the Lota coal shows .5 water; 40.2 volatile matter; 53.2 fixed carbon and 1.6 ash.

As yet it has not been found possible to make with lignite a coke of sufficiently good quality for the iron manufacture; but cokes tolerably compact, though rather friable, show a calorific power of 71.3 to 75.5, as compared with pure carbon represented by 100.

The Delaware & Hudson Canal Co. was chartered in April, 1823, for the construction of a canal to carry fuel from the Anthracite coal fields to tide-water at Rondout. That canal is still there. The company soon started in as a railroad builder and now has four separate systems, the Albany & Susquehanna system of 187 miles, the Champlain system of 149 miles, the Pennsylvania system of 156 miles and the Saratoga system of 194 miles, making a total length of 688 miles, while the canal is 108 miles long.

THE STRUCTURAL FEATURES OF THE ANTHRACITE REGION.

Mr. Joseph S. Harris, of the Lehigh Coal & Navigation Co., writes:—"The greatest known deposit of Anthracite coal is that of eastern Pennsylvania, in which locality it occurs over a region containing about 1,700 square miles, though the area which is actually underlaid with workable beds does not exceed 483 square miles. Its chief geological divisions are known as the Wyoming, the Lehigh, and the Schuylkill regions, and the coals these districts produce are similarly designated. They differ somewhat in their chemical and mechanical peculiarities, though in many instances their chief distinction is that they reach their market by certain transportation routes, for it has often occurred that the coal produced at a certain colliery was classed as Lehigh coal if it were carried over either of the Lehigh RR's, and was called Schuylkill coal if carried over the Reading RR.

"It may, however, be said that in general in the Wyoming region the coal beds are more nearly horizontal, are geologically less disturbed, and, the gaseous ingredients not having been so thoroughly driven off, the coals are more free-burning than those of the other districts. The latter characteristic makes their smaller coals, which are used largely for the production of steam, more desirable than the same sizes of the harder coals, as they are more easily ignited and more quickly responsive to increased draft when the fire burns low and needs to be quickened to greater activity. The process of coal formation seems also to have gone on in this region with less interruption from the intercalation of beds of other material forming slates, so that the coal is much more readily prepared for market, and to that extent is more cheaply produced than that of the other regions.

"The Lehigh region is characterized by coals of denser structure with little volatile matter, so that they do not readily ignite. They last well in the fire, and are therefore specially in demand for metallurgical purposes requiring a high and continuous heat, but the small steam coals are difficult to burn steadily, and respond slowly to forced draft, so that while they produce great heat, they are not favorites with firemen, being troublesome in comparison with Wyoming coals.

"During the period of coal formation the Schuylkill region was subject to interruptions of the plant growth, and to the deposit of strata of slate and other impurities between the beds of coal. Where these are intercalated and interstratified with the subdivisions of the coal beds and cannot be separated from the coal before they are taken from the mine, it follows that much refuse must be hoisted to the surface, and afterward laboriously picked out from the coal, which processes considerably increase the cost of producing coal in this region."

At the St. Bernard Coal Co. operations in Kentucky the output of the mines for 1891 was 428,029 tons coal; also sold (and used) 22,167 tons coke. All tons 2,000 lbs. At least 25,000 tons slack (not included in the above output of coal) were used in making coke—making the actual tonnage produced of coal 453,029. In 1892, there were 469,100 *net* tons coal mined, and 31,452 *net* tons coke made. They have 104 ovens in operation.

THE ORIGIN OF THE TERM SEA COAL.

The Contemporary 'Review':—"It was to supply the wants of smiths and lime burners that English coal began to be systematically dug, about 1,200 A. D. This mineral fuel suited the requirements of their crafts even better than wood. An unwonted and widespread demand for fuel for these purposes doubtless sprang up at this period, in connection with the numerous feudal castles and ecclesiastical buildings which were being erected throughout the kingdom. Not only were smiths and lime burners the sole patrons of coal at this early stage, but for a long time subsequently they continued to be its principal consumers.

"Curiously, the word coal was in use long before, as well as long after the commencement of the coal trade, with a meaning quite different from that which it now has. The term originally belonged to wood fuel, and was applied in particular to wood which had been charred, or what is now called charcoal.

"When the trade in mineral coal began this was usually distinguished by the singular name of sea coal. It would seem that from having been gathered in early times on the seashore, more especially of Northumberland, along with seaweed and other wreckage cast up by the waves, this peculiar substance was supposed to be of marine origin. From this circumstance and its resemblance to wood coal in color and burning properties, it obtained the name of sea coal, by which it was so long and widely known. Then in the course of time, as this new fuel gained upon and superseded the old, the simple name of coal became universally transferred to it.

"Though the records of the incipient coal trade are scanty, they show that a traffic in coal soon sprang up between London and the Newcastle-on-Tyne coalfield. A lane in the suburb of the metropolis, where the burning of lime appears to have been carried on, was already known as 'Sea Coals Lane' in 1228. A particular notice also occurs of the arrival of shiploads of sea coal in London in 1257; and small purchases of it were made for forging iron at Westminster Palace in 1258–9. It was usually sold by the quarter. At Billingsgate, in the time of Henry III., every two quarters of sea coal paid a duty of one farthing.

"Sea coals were likewise bought at Berwick-on-Tweed in 1265, so that by the middle of the thirteenth century a small trade in coal was evidently being carried on along a large stretch of the eastern seaboard. The growth of the trade is reflected in the increasing revenue of Newcastle-on-Tyne, which, from being £100 a year in 1213, had risen to £200 in 1281 owing to the coal trade of the port. From smiths and lime burners the use of coal extended to artisans who used furnaces in their trades. In Nottingham, situated on the confines of a great coal field, this movement appears to have been commenced very early. Queen Eleanor was unable to stay there in 1257 on account of the smoke of the sea coals."

In the Lehigh district of the Anthracite coal regions of Pennsylvania the miners work on the following basis, adopted in 1880:—When coal sells at tidewater at $6 per ton the price of Hazleton mines colliery cars will be 97 cents; at $5.50 per ton, 92 cents; at $5 per ton, 88 cents; at $4.50 per ton, 84 cents; at $4 per ton, 79 cents; at $3.50 per ton, 75 cents, and at $3.00 per ton, 70 cents.

SPONTANEOUS COMBUSTION OF COAL.

The old belief, says the leading insurance organ of Germany, that spontaneous combustion of coal is caused by the ignition of the oxygen in the pyrites of sulphur which coal contains still lingers, although researches of eminent German, English and French *savants*, who have devoted special attention to this subject, have conclusively demonstrated that the sulphur pyrites play but an unimportant *role* in relation thereto, it being the carbonic gas in the coal that ignites and causes spontaneous combustion. For it has been shown that large heaps of pyrites extracted from coal have never ignited spontaneously, but if they be mixed with fine carbonate matter combustion follows easily. Moreover, the small quantity of sulphurous pyrites found in coal, and the small amount of heat generated by the same, make it highly improbable that they can cause spontaneous combustion. But, on the other hand, it is a well-known fact that carbon, whether in charcoal or Bituminous coal, absorbs a large quantity of oxygen. Indeed, coals least affected absorb, upon their being broken out, one-and-a-quarter of their own volume of oxygen, and some kinds even three times that of their own volume. The oxygen thus absorbed is, when dense and free from other admixtures, very volatile and generates, immediately upon its connection with carbonic gas, carbonic acid and water, whereby again heat is generated. Generally this heat escapes, but if the coals are small and heaped up, the escape is slow, coal forming a bad conductor of heat. As the temperature rises, the formation of oxygen quickens until the point of ignition is reached. The initial temperature greatly influences the process and increases in a high degree the rapidity with which combustion is effected. One of our physicists has examined the effect of various factors bearing upon the spontaneous combustion of coal cargoes, and has come to the conclusion that the larger the cargo and the more broken the coals, whereby the number of surfaces exposed to the oxygen is increased, the greater is the danger. The length of journey, the climate, the heat generated in steamships and ventilation are of next importance. The sole effect of the sulphur pyrites is that they cause the coal to break more easily during loading if moist, and thereby increase the quantity of surfaces exposed to the influence of the oxygen. Therefore, it is the capacity of the coal for absorbing oxygen that is the true cause of the danger spoken of, and the extent to which this capacity is present depends partly upon the amount of moisture absorbed by the coal. The journal which we quote furnishes a table, showing the small influence of the sulphurous pyrites and the great influence of the moisture in coals as regards the probabilities of spontaneous combustion, from which we extract the following scale:—" 'Very little danger' there is with coals containing from 1.1 to 1.5, and even 3.0 per cent. of pyrites of sulphur, and having from 2.5 to 3.9 per cent. of moisture. 'Moderate' is the danger when there is from 1.1 to 1.2 per cent. of pyrites, and between 4.5 and 4.7 per cent. of moisture; but 'great' is the danger when the contents of sulphur pyrites vary between 0.8 and 1.1 per cent., and the moisture ranges from 4.8 up to 9.0 per cent. It will be seen from these figures that the percentage of sulphur pyrites in the three classes is very nearly the same, but that the danger increases with the moisture."

There were imported at San Francisco last year 31,809 tons of Anthracite coal from Great Britain.

COAL FROM THE UNITED STATES TO CANADA.

Year (ending June 30th).	Anthracite.	Bituminous.
1883	727,256	835,845
1884	890,845	1,036,571
1885	907,962	971,315
1886	1,019,875	883,848
1887	1,055,085	1,173,562
1888	2,137,304	1,226,211
1889	1,286,105	1,311,275
1890	1,196,789	1,467,099
1891	1,617,198	1,399,067
1892	1,477,583	1,638,975

Details for the last fiscal year are as follows:—

Provinces received in.	Anthracite—Tons.	Bituminous—Tons.
Ontario	1,026,865	1,588,981
Quebec	357,404	82,654
Nova Scotia	27,095	6,645
New Brunswick	54,877	1,509
Manitoba	11,261	12,679
British Columbia	82	1,364
P. E. Island	1,522	....

COAL IN ALASKA.

The operations of the Alaska Coal Co. promise to make a profound impression upon the prices of that necessary commodity at San Francisco before many months are past. The company is the owner of several thousands of acres of coal lands in Cooks Inlet, and has a considerable force of men building wharves, tracks and tunnels, preparatory to the commencement of mining on a large scale. The company has already a fleet of twelve sailing vessels, and intend keeping the fleet in constant motion between the mines and San Francisco. The coal lies in veins of from six to eight feet in thickness and of unknown depth. It is semi-Bituminous in character and of very high grade. What will strike the San Francisco citizen with amazement is that the company propose to supply consumers at from $3.50 to $4.00 per ton and say they will do well at this price.

OUTPUT OF COKE IN THE VIRGINIAS.

The coke transported over the Chesapeake & Ohio Railway has been :—

1887	276,264 tons.	1890	280,055 tons.
1888	252,973 tons.	1891	318,393 tons.
1889	240,410 tons.	1892	333,920 tons.

All the returns are in net tons of 2,000 pounds.

The coke transported over the Norfolk & Western RR. has been :—

1887	136,450 tons.	1890	386,100 tons.
1888	181,177 tons.	1891	355,500 tons.
1889	253,179 tons.	1892	530,000 tons.

All these returns in tons of 2,240 pounds.

Coke made at ovens along the B. & O. RR. in the past year was probably 400,000 net tons.

At Elk Garden mines on W. Va. Central & P. Ry., 12,648 tons in 1889; 56,000 tons in 1890; 74,083 tons in 1891; 85,033 tons in 1892.

COAL IN JAPAN.

The British Consul at Hakodate reports of the deposits of the Island of Yezo: "Fifteen years ago it was estimated by the American engineers who made the first surveys for the Government that the workable coal beds contained at the very lowest estimate about two-thirds as much as the coal beds of Great Britain. Doubts have sometimes been expressed as to the soundness of this large estimate, but time and further investigation have more than confirmed it. An elaborate Japanese report, embodying the results of the most recent surveys, was published in March, 1892. From this carefully compiled official document it appears, as the result of actual surveys just completed, that there are in the workable seams over 600,000,000 tons of coal, the total for all the rest of Japan being 700,000,000 tons. Of the Yezo coal nine-tenths are found in one district, that of the valley of the Ishikari River, near the west coast; the remaining tenth being scattered over five fields, of which the most important, that called Rumoe, in the province of Teshiwo, lies quite close to the coast on the same side of the island, just north of the head waters of the Ishikari River. Then come the Soya coal field at the extreme north of the island and the Kushiro on the southeast coast, each containing 10,000,000 tons. The first coal mined in the island, at Iwanai in the province of Sheribeshi, belongs to the smallest of the six coalfields, containing barely 2,000,000 tons. As regards the quality of this valuable mineral, although it is very uneven, and none of it stands in the front rank, even of Japanese coal, still it is all marketable, and some of the better-class mines in the Ishikari field, notably those of Horonai, Ikushumbetsu and Sorachi, yield a coal not at all inferior to the product of the Kiushiu mines, the famous and fast-dwindling Takashima alone excepted. Though found in comparatively recent geological strata, they are true Bituminons coals, widely renowned by their composition from all known coals of similar age, and equal in commercial value to Australian coal."

COAL TRAFFIC THROUGH THE SAULT.

TONNAGE OF ST. MARY'S FALLS CANAL, MICHIGAN.

	1888.	1889.	1890.	1891.	1892.
April.......	....	26,619	131,919	10,219	151,495
May.........	283,124	95,075	240,014	404,698	401,729
June........	386,883	297,799	312,796	390,674	462,564
July.........	421,986	290,279	342,854	436,254	542,003
August.....	353,388	282,811	362,768	428,842	414,448
Sept.........	280,365	229,882	285,407	351,517	363,673
October....	265,465	244.547	306,644	294,831	352,627
Nov.........	105,147	162,185	198,123	189,787	216,327
Total.....	2,096,358	1,629,197	2,176,585	2,507,722	2,904,266

Father Hennepin the missionary, discovered coal in 1669 in what is now Ottawa, Ill. This appears to be the first record of the finding of coal in America, but it was not mined till nearly a century and a half later. In 1803 five ark loads of Anthracite coal were floated down the Lehigh River and sold for $21 per ton, at Philadelphia.

THE GLENVILLE, WEST VIRGINIA, COAL.

What is known as the Glenville coal field in West Virginia is thus described by Mr. Andrew Roy, the well-known Ohio mining engineer:—

"This field is situated mainly in Gilmer County, on both sides of the Little Kanawha River, between Glenville and Burnsville. The main seam of coal of the district, which is the equivalent of the Pittsburgh bed is 6 to 7½ feet thick, in a homogeneous mass. The coal belongs to the coking variety, burns with a long flame and holds fire well. Both at Glenville and Burnsville the coal is thin and high in the hills, these points representing the eastern and western outcrops of the deposit. From both of these points the strata dip inward, hence the field exists in the shape of a synclinal trough, which carries the coal below the bed of the Little Kanawha at Stouts Mills (about midway between the lines of the outcrops) fully one hundred feet. As my observations were confined mainly to the left or north side of the river, I do not know how far the basin extends to the south, but on the north side the coal is met in all the hills for ten or twelve miles, and I have no doubt will extend to the south of the river in a similar manner. It is a moderate estimate that there are 100 square miles of the Pittsburgh vein in this field, three-fourths of which hold the coal above water level, and usually of the proper height to admit of drainage and dumping. The roof is good, the floor uniform and all the conditions exist for cheap and extensive mining. Plants could be erected at a cost of $10,000 or less, capable of loading 1,000 tons of coal per day.

"I have examined the coke made from this coal. It is firm, and having a metallic lustre is low in ash and not unreasonably high in sulphur. The following is an analysis made by Rattle & Nye, of Cleveland:—Fixed carbon, 89.94; Ash, 9.08; Sulphur, .96. It will be seen that there is less than 1 per cent. of sulphur in the coke, while the amount of ash is not excessive. This result, however, has, I judge, been obtained from coal which has been crushed and washed, as the coal in the hill appears to contain considerable sulphur in the form of pyrites of iron, which can be readily freed by crushing and washing before being put in the ovens. To produce a coke fitted for the smithing of iron the coal will, in my opinion, require to be crushed and washed, which with the appliances now in use at many mines in Pennsylvania can be done at a cost not exceeding four cents per ton. An analysis made of the raw coal by the same chemists (Rattle & Nye) gives the following results:—Moisture, 1.08; Volatile Matter, 52.12; Fixed Carbon, 41.02; Sulphur, 1.55; Ash, 4.22. The amount of volatile matter in the coal is extraordinary, and when subjected to the test, the coal will undoubtedly make one of the best gas coals in America. In none of the coals used in the manufacture of gas in Ohio does the volatile matter reach 40 per cent., and the same is true of the best gas coals of Pennsylvania, the Westmoreland gas coal for example, which contains only 37 per cent. of volatile matter.

"As the coal from the Glenville district is firm and well adapted for shipping and storing, it will bear transportation well to the great consuming districts of the North and West and compete successfully in market with the best grades of the Great Kanawha coals."

An analysis of the coal found at Saginaw Bay, Mich., shows: Water, 4.82; Vol. matter, 44.58; Fixed carbon, 41.52; Sulphur, 3.38; Ash, 5.70.

COAL IN MEXICO.

The British Consul at Nogales, states that the coal fields of Sonora, Mexico, commence near San Marcial, about seventy-five miles northeast of Guaymas, extending east ninety miles or so to Trinidad. From Ortiz station, on the railroad, to the commencement of the coal belt the distance is probably about forty miles, but a proper outlet for this coal would be a road direct from Guaymas. Consul Smith says:—In an investigation and report upon coal in Sonora, made by me in October, 1890, I found that between the parallels 32 deg. and 34 deg. coal is found at the above named place; again near Fronteras, Sonora; again in the Chiricahua Mountains, in Arizona, about forty miles east of Wilcox, on the Southern Pacific RR.; again northwest from Wilcox about seventy miles, on the San Carlos Indian reservation; again further north, near Fort Apache; again further north, at Evanston, Wyo.; and again further north, in the State of Montana. From this it would seem there is a coal belt extending north from San Marcial, Sonora, between these two parallels, thousands of miles. The Sonora coal fields have been prospected, some with the diamond drill, but no mines have been opened up. On account of their close proximity to the navigable waters of the Pacific they are valuable, and with proper management they could be made to pay handsomely.

WELLAND CANAL NAVIGATION.

1892	Opened April 17.	Closed December 12.
1891	Opened April 20.	Closed December 8.
1890	Opened April 15.	Closed December 10.
1889	Opened April 16.	Closed December 1.
1888	Opened April 23.	Closed December 8.

ST. MARY'S FALLS CANAL NAVIGATION.

1892	Opened April 15.	Closed December 7.
1891	Opened April 27.	Closed December 8.
1890	Opened April 20.	Closed December 3.
1889	Opened April 15.	Closed December 4.
1888	Opened May 7.	Closed December 4.

MACKINAW STRAITS NAVIGATION.

1892	Opened April 3.	1889	Opened April 6.
1891	Opened April 20.	1888	Opened May 4.
1890	Opened April 8.	1887	Opened April 24.

Closes same time as St. Mary's Falls (Soo) canal.

ERIE CANAL NAVIGATION.

1892	Opened May 2.	Closed December 5.
1891	Opened May 5.	Closed December 5.
1890	Opened April 28.	Closed December 1.
1889	Opened May 1.	Closed December 1.
1888	Opened May 10.	Closed December 3.

WATER TRAFFIC IN FRANCE.

According to the returns published by the Minister of Public Works, the total length of navigable rivers and canals in France in 1891 was 7,995 miles, of which 2,735 miles were rivers which had been rendered navigable by dredging, and the rest canals. The total quantity of goods carried upon these waterways was 25,181,056 tons, or 1,013,713 tons more than in 1890, the increase in the traffic being much greater on the canals than the rivers. The international water traffic between France upon the one hand and Belgium and Germany upon the other was 3,012,637 tons of which 2,125,407 tons were imports, and 887,230 tons exports. More than 50 per cent. of the imports consist of fuel brought from the coalfields of Mons and Charleroi, while the exports are almost entirely composed of goods sent to Belgium.

FUEL USED IN IRON MAKING.

Mr. J. M. Swank furnishes the statement below, which shows in net tons, the quantity of pig iron produced in the United States.

	1889.	1890.	1891.	1892.
With Bituminous coal and coke	5,951,425	7,154,725	6,537,214	6,822,266
With Anthracite coal and coke	1,920,354	2,448,781	2,090,041	1,797,113
With Charcoal	644,300	703,522	646,200	537,621
Total	8,516,079	10,307,028	9,273,455	9,157,000

The Anthracite figures include all pig iron made with mixed Anthracite and coke as well as that made with Anthracite alone. The production of pig iron with Anthracite alone is now annually less than that made with charcoal.

LAKE SUPERIOR IRON ORE SHIPMENTS.

The annual shipments are reported by the 'Marquette Mining Journal' to be:

1887	4,738,903	1890	8,145,850
1888	5,023,279	1891	7,062,233
1889	6,803,684	1892	9,074,243

The grand total since the beginning of the industry is put at 71,897,871.

NEW YORK, SUSQUEHANNA AND WESTERN RR. COAL TONNAGE.

Below is tonnage of Jermyn coal moved over this line,

Year.	Tons.	Year.	Tons.
1882	35,595	1888	707,077
1883	329,522	1889	650,627
1884	475,346	1890	845,387
1885	608,072	1891	932,126
1886	632,055	1892	1,001,751
1887	675,720		

OPENING OF LAKE NAVIGATION AT BUFFALO.

1887	April 19.	1890	March 31.
1888	April 28.	1891	April 12.
1889	April 10.	1892	April 6.

THE CONNELLESVILLE COKE TRADE.

The following facts are gathered from the annual report in the Connellsville *Courier*, and are official.

OUTPUT IN NET TONS, MONTHLY FOR FOUR YEARS:

Month.	1892.	1891.	1890.	1889.
January	559,216	484,758	623,223	524,447
February	542,503	202,320	557,583	417,280
March	601,765	53,154	535,750	433,090
April	529,187	111,528	461,837	418,534
May	497,040	224,892	467,056	454,250
June	510,552	540,972	498,403	421,178
July	464,751	561,344	443,379	497,115
August	447,865	517,158	503,662	415,254
September	488,662	542,860	526,530	513,190
October	538,556	558,360	608,864	600,624
November	540,236	543,402	539,727	537,645
December	571,358	589,212	455,504	593,219
Totals	6,300,691	4,929,960	6,221,518	5,825,826

As showing the distribution of the coke made, it may be noted that 20 per cent. goes to Pittsburgh, 57 per cent. to western points and 23 per cent. to eastern points for consumption.

The ownership, and ovens in blast, and the estimated weekly output, at the close of 1892, is shown below:

Owners.	Ovens.	In blast.	Tonnage.
H. C. Frick Coke Co	9,095	6,457	56,942
McClure Coke Co	2,351	1,625	14,473
W. J. Rainey	1,230	1,101	11,555
Cochrane and others	751	751	6,780
Hecla Coke Co	772	530	5,405
Hostetter Connellsville Coke Co	607	300	2,730
Small operators	983	959	9,255
Iron manufacturers making their own coke	1,467	1,426	14,420
Totals	17,256	13,149	121,560

The prices of coke have remained nominally the same during the year. Foundry and crushed coke kept well up to quotations, but furnace coke sold below, some sales being made as low as $1.40, ranging from that to $1.75 and $1.80, with an average price of perhaps $1.75. The cut prices were inaugurated early in the year. In March the Valley iron men demanded a reduction in the prices of coke, ore and freights. The large operators refused to recede from $1.90. The furnacemen threatened to shut down, but the railroads came to their rescue by reducing freights ten cents per ton to the Valley points and five cents to Cleveland. The iron men, however, shut down a number of furnaces, making a dull demand for coke. During this dullness the smaller operators began to cut the rate in order to secure orders to keep their works going. This cutting continued until, during midsummer, some coke was sold at the figure quoted. Crushed coke is growing rapidly in favor and commands full price. The foundry trade has been very good.

"There has been absolutely no labor troubles during the year. There is no labor organization among the men, and the attempts to form one have failed. The wages of the region continue to be paid on the basis of the scale posted by the H. C. Frick Coke Co. and the McClure Coke Co., March 25th, 1891. The wages were then fixed on a $1.90 coke rate and have remained so since."

ANTHRACITE LABOR STATISTICS.

The report of the inspectors of mines for the year 1891, is the latest available, and from it the following are gathered:

Districts.	Coal produced.	No. employees inside the mines.	Outside employees.	Total employees.
First district*				
Second district	9,981,356	16,171	7,620	23,891
Third district	6,125,099	4,616	2,586	7,202
Fourth district	7,639,250	13,006	6,405	19,411
Fifth district	5,803,964	7,474	7,487	14,961
Sixth district	6,419,320	11,269	8,172	19,441
Seventh district	5,321,044	11,605	6,810	18,415
Eighth district	3,030,933	5,916	3,888	9,804
Totals	44,320,966	70,157	42,968	113,125

*Reported with Second district, one inspector for both.

Fatal accidents, 427; non-fatal, 997. Wives made widows, 186; orphans left, 592.

OUTPUT OF COAL IN INDIA.

According to an official report, the total yield of Indian coal has, during the past few years, increased as follows: 1886, 1,389,000 tons; 1888, 1,708,000 tons; 1889, 2,045,000 tons; 1890, 2,168,000 tons. During the same period the importations of coal by sea decreased from 849,000 tons in 1886 to 605,000 tons in the year 1889, but rose in 1890, under the stimulus of a high rate of exchange between silver and gold, to 784,000 tons; of this the bulk came from England, while 12,014 tons came from Japan and 10,017 from Australia. The Burdwan coal mines in Bengal did not maintain the large output of the preceding year, but their industrial importance is great and they employ over 12,000 workmen. The exportations of Bengal and Assam coal by sea from Calcutta to foreign countries and coast ports were 132,000 tons, while of 289,000 tons of coal placed on steamers in Calcutta during the year for bunker use, 286,000 tons were Indian coal. Burmah in 1887-88 took 70 tons of Bengal coal, but in 1890-91 took 64,244 tons, while Madras in the latter year took 10,214 tons. Up to the end of 1890 no appreciable output had been obtained by concessionaires in the upper Burmah coal fields, but work there had begun.

The first thought in regard to coal is that it is made to give warmth; heat the next, that one of its principal uses is to illuminate. But there are obtained from it the means of producing more than four hundred colors or shades of color, among the chiefs of which are saffron, violet-blue and indigo. There are also obtained a great variety of perfumes—cinnamon, bitter almonds, queen of the meadows, clove, wintergreen, anise, camphor, thymol (a new French odor), vaniline and henotrophine. Some of these are used for flavoring. Among the explosive agents, whose discovery has been caused by the war spirit of the last few years in Europe, are two, called dinitro-benzine, or bellite, and picrates. To medicine coal has given hypnone, salicylic acid, naphtol, phenol and antipyrine. Benzine and naphthaline are powerful insecticides.

COAL IN PERU.

Mr. Edward Laue, formerly of the Callao & Oroya RR., states: "The coal deposits, vast as they are, have been practically untouched. Good Bituminous coal is found in the department of Junin, within a short distance of Oroya on the Amazonian slope, to which town the Central Ry. will shortly be opened. Coke made from this coal has already been successfully used on a large scale at Casapalca smelting works. At Cerro de Pasco, and close to the proposed line of railway, immense Bituminous coal deposits exist. The coal will be available for smelting and general purposes when once brought within reach by the railroad and industries, heretofore financially impracticable, will spring up. Some idea of the economy that will result may be formed when it is known that once the railroad is completed to Cerro de Pasco this can be mined and placed on the cars at from $1.80 to $2.40 a ton. Bituminous coal is found in many other parts of Peru, but the deposits especially referred to are those which the projected lines of railway will make immediately available. This coal is burnt in grates in the houses of Cerro de Pasco.

"Anthracite coal is found in the Department of Ancacha in inexhaustible quantities, and immediately contiguous to the proposed line of railway from Chimbote to Caraz. Landing at the port of Chimbote, and following the Santa River up its at present almost impassable gorge, large measures of Anthracite coal are found at various points. Within a quarter of a mile of the town of Caraz, which has a population of 8,000 people, coal deposits exist from which the coal can be readily mined and placed on the cars for $1.50 to $1.80 a ton. Anthracite coal is also abundant in the province of Huamachuco. Numerous beds exist in the sandstone formation. Near Huamachuco there are two mines worked, the measures in which are 1½ and 2 metres thick respectively. In Llary the coal measure is 4 metres thick, and at the Victoria Smelting Works this coal is used for smelting the ores. The analysis of the various coal samples go to show that they do not compare favorably with American and English coal. Large deposits of lignite are found in the Departments of Arequipa and Puno."

COAL IN RUSSIA.

An official report shows that in 1891 there was an increased output from the Donetz, Poland and Oural coal fields; that from the basins of Poland was 2,600,000 tons in 1891, having increased by 5.4 per cent. over that of 1890, while the production of the Oural basin was 252,000 tons, having been but 250,000 tons in 1890. This constant development of coal mining is all the more noteworthy because of the concomitant increase of the application of naphtha for heating purposes, while there was no great falling-off in the importation of foreign coal, which was 1,692,000 tons during the first eleven months of 1891. Two other causes contribute to the development of the coal trade, the unification of the railway rates, and the increasing use of water carriage for the transport of coal.

The receipts at Ashland, Mich., during 1892, are said to have been 255,000 tons.

THE WORLD'S SUPPLY OF COAL.

The world's annual output of coal has, it is estimated, reached a total of 485,000,000 tons, and the countries contributing to that enormous total were as follows, together with the amount they produced in 1890. Great Britain and Ireland, 128,000,000 tons; America, United States (estimated for 1891), 141,000,000 tons; Germany, 90,000,000 tons; France, 28,000,000 tons; Belgium, 20,000,000 tons; Austria, 9,000,000 tons; Russia, (1881), 6,000,000 tons; others, 9,000,000. During the last twenty years there has been a marked increase in the consumption of coal, which was, no doubt, commensurate with increased industrial activity. Thus, comparing European countries alone, the average annual output for the period of 1881–90 was upward of 62,000,000 tons greater than during the previous decade and that rate of increase bade fair to be maintained, so that the world's consumption of coal would soon reach 500,000,000 tons per annum, if it had not already done so. In an investigation made by a royal commissioner as to the ascertainable sources of coal in Great Britain it was ascertained that not more than 146,773,000,000 tons were available at depths not exceeding 4,000 feet from the surface, a reserve which, at the present rate of increase of population and of coal consumption, would be practically exhausted in less than 300 years. The law of limit in this, as in all other mineral products, is, of course, without exception. It is simply a difference in tonnage. Industrial activity, to which under present conditions the use of coal is indispensable for steam and power purposes, is not only multiplying the demands of consumption, but has a widening era of use, to which the map of the two hemispheres is the only limit. We cannot add a pound of coal to nature's deposits or build an addition to the planetary cellar, but it is possible to economize a produbt in the use of which civilization has been ignorantly wasteful.

BLAST FURNACES OF THE UNITED STATES.

The following table reported by the 'American Manufacturer' shows the standing of the furnaces on the first of January, 1893, arranged by fuels:

	In blast.		Out of blast.	
Fuel.	No.	Weekly capacity.	No.	Weekly capacity.
Charcoal	40	9,045	83	12,701
Anthracite	70	31,167	82	30,366
Bituminous	140	135,489	112	74,964
Totals	250	175,701	277	118,031

The London 'Iron' says that of the total number of 109,000 locomotive engines which are at present running on the earth's surface, Europe claims 63,000, America 40,000, Asia 3,300, Australia 2,000, and Africa 700. In Europe, the kingdom which gave the locomotive birth, viz., Great Britain and Ireland, takes premier position with 17,000 engines; Germany is a good second, with 15,000; France is third, with 11,000; Austria-Hungary, the second largest continental country, has 5,000; Italy, 4,000; Russia, but 3,500; Belgium, 2,000; Holland and Spain, 1,000 each; Switzerland, 900; and the remaining European States, 2,600.

COKE MANUFACTURE IN THE UNITED STATES.

Mr. Joseph D. Weeks states that during the 12 years covered, the production of coke has increased from 3,338,300 tons in 1880 to 11,508,021 tons, the production of 1890, the production of 1891 being 10,352,688 tons. The number of ovens has increased from 12,372 in 1880 to 40,245 in 1891. The amount of coal used in the production of coke has increased from 5,237,741 short tons in 1880 to 18,005,209 tons in 1890, the amount of coal used in 1891 being but 16,344,540 tons. The total value of coke at the ovens has increased from $6,631,267 in 1880 to $23,215,302 in 1890, the total value of coke produced in 1891 being but $20,393,216.

MANUFACTURE OF COKE IN THE UNITED STATES, BY STATES AND TERRITORIES, IN 1891:

States and Territories.	Ovens Built.	Coal used.	Yield of coal in coke.	Coke produced.	Value of coke per ton.
		Short Tons.	*Per Cent.*	*Short Tons.*	
Alabama	5,068	2,144,277	60	1,282,496	$ 2.33
Colorado	948	452,749	61	277,074	2.24
Georgia	300	164,875	62.5	103,057	2.25
Illinois	25	10,000	52	5,200	2.25
Indiana	84	8,688	44	3,798	2.00
Indian Territory	80	20,551	46	9,464	3.22
Kansas	72	27,181	52	14,174	2.34
Kentucky	303	64,390	52	33,777	2.02
Montana	140	61,667	47	29,009	8.91
Missouri	10	10,377	66	6,872	1.45
New Mexico	Pits.	4,000	57.5	2,300	4.75
Ohio	421	69,320	56	38,718	1.99
Pennsylvania	25,324	10,588,544	66	6,954,846	1.82
Tennessee	1,995	623,177	58	364,318	1.92
Utah Territory	80	25,281	31	7,949	4.50
Virginia	550	285,113	58.7	167,516	1.58
Washington	80	10,000	60	6,000	7.00
West Virginia	4,621	1,716,976	58.7	1,009,051	1.83
Wisconsin	120	52,904	65	34,387	5.61
Wyoming	24	4,470	60	2,682	3.00
Totals	40,245	16,344,540	63	10,352,688	1.97

The first steel coal barge was launched at Pittsburgh last year and the owner predicts that in a few years none of the larger carrying craft on the Ohio will be constructed of any other material. The new barge is 135 feet long and 24 feet wide and is an exact reproduction of a wooden barge. The latter type of vessel cost $1,400 and lasts ten years, with repairs that come to as much again. A steel barge, it is estimated, will cost $4,200 and last, perhaps, 50 years, without needing much renovation. Moreover, in a wreck, the wooden carrier often goes to pieces and the cargo is lost. Some of the "operators" have fleets of between 300 and 400 barges, so that the item of repairs alone is a formidable one. As to this, too, there is another and a weighty consideration—the advancing price of timber. The firm owning the new barge proposes to replace their wooden with steel barges, if the experiment succeeds.

COLORADO FUEL & IRON CO.

Details of the operations during the year 1892, of this, the largest producer of coal in the State of Colorado, are presented below:—

COLLIERIES IN OPERATION.	R—M. AND LUMP.	NUT.	SLACK.	TOTAL.	COKE.
Sopris	246,557	....	91,541	338,095	54,825
Engleville	243,900	....	....	243,900	....
Berwind	163,032	....	....	163,032	....
Rouse	175,798	52,210	71,914	299,992	....
Walsen	53,984	6,003	9,973	69,961	....
Cameron	2,730	172	734	3,636	....
Robinson	52,184	10,810	13,824	76,817	....
Pictou	61,051	18,678	10,542	90,271	....
Coal Creek	86,575	17,804	18,193	122,570	....
Crested Butte	101,142	....	....	141,142	51,879
Anthracite	40,579	16,797	22,807	80,183	....
New Castle	137,055	15,777	22,319	175,151	....
Spring Gulch	78,526	....	....	78,526	....
Sunshine	14,961	1,996	26,824	43,781	....
Marion	17,200	....	....	17,200	....
Coalridge	1,456	629	1,445	3,520	....
El Moro ovens	....	....	....	....	95,052
Cardiff ovens	....	....	....	....	53,019
Total tons of 2,000 lbs	1,435,739	140,877	290,117	1,906,724	254,776

GREAT BRITAIN'S COAL TRADE.

The total output in 1891 was 185,479,126 gross tons, and the average value per ton at the mines is put at 8s., or say $2.00 per ton, by the official returns. Changes in the output have been as below, in the years named:

Year.	Tons.	Year.	Tons.	Year.	Tons.
1871	117,352,028	1878	132,612,063	1885	159,351,418
1872	123,497,316	1879	133,720,393	1886	157,518,482
1873	128,680,131	1880	146,969,409	1887	162,119,812
1874	126,599,108	1881	154,184,300	1888	169,935,219
1875	133,306,485	1882	156,499,977	1889	176,916,724
1876	134,125,166	1883	163,737,327	1890	181,614,288
1877	134,179,968	1884	160,757,779	1891	185,479,126

The exports amount to upwards of thirty millions of tons, not including the coal for the use of steamers engaged in the foreign trade, which amounts to eight million tons annually.

IMPORTS AND EXPORTS OF COAL.

The following movement of coal is reported by the bureau collecting and compiling the returns of the several custom houses. The tariff from 1824 to 1843 was six cents per bushel, or $1.68 per gross ton; from 1843 to 1846, $1.75 per ton; 1846, 30 per cent. *ad valorem;* 1847 to 1861, 24 per cent. *ad valorem;* 1862 to 1864, $1.00 per ton; 1865, $1.00; 1866 to 1872, $1.25 per ton; since August, 1872, 75 cents per ton. During the period from June, 1854, to March, 1886, the reciprocity treaty was in force, and coal from the British possessions in North America was admitted into the United States duty free. The following tabular statement shows the imports and exports of coal, 1887–1891 inclusive.—Fiscal years ending June 30.

Years.	Exports. Anthracite.	Exports. Bituminous.	Imports. Bituminous.
1887	680,138	643,563	906,634
1888	944,383	780,248	877,504
1889	943,204	841,798	1,155,329
1890	793,140	1,138,681	935,193
1891	924,312	1,474,727	1,055,069
1892	808,277	1,700,496	1,331,964

All gross tons of 2,240 lbs.

The details which follow show the reported tonnages by the countries sent to and received from, and also the places or customs districts received at and shipped from. The items of receipts from foreign countries are in reality but surplus on hand when the vessel trading from that country reported her arrival here; sometimes it is sold. The exports to European countries are mainly bunker coals supplied to steamers trading from those countries. In the last fiscal year the exports of Anthracite, which are mainly to the Canadian cities and towns, are stated at 808,277 tons; this certainly does not include the coal going to Canada by rail.

CUSTOMS DISTRICTS AND PORTS INTO WHICH IMPORTED.

	Tons Bituminous.
Alaska	2,701
Aroostook, Me	3
Baltimore	1,101
Bangor, Me	7,997
Boston and Charlestown, Mass.	14,137
Brunswick, Ga	9
Charleston, S. C	274
Castine	326
Galveston, Texas	7,015
Los Angeles	95,135
Machias	1,158
Marblehead	600
Mobile, Ala	3
Montana and Idaho	38,017
Newburyport	612
New Haven	837
Newport News, Va	43
Norfolk, Va	633
New York, N. Y	19,159
Oregon, Oregon	2,052
Perth Amboy	750
Passamaquoddy, Me	1,862
Pensacola, Fla	115
Philadelphia, Pa	5,081
Plymouth, Mass	330
Portland and Falmouth, Me	5,172
Puget Sound, Wash	22,867
Salem, Mass	3,419
Saluria, Tex	56,611
San Diego, Cal	76,310
San Francisco, Cal	946,459
Savannah, Ga	951
Vermont, Vt	1,285
Williamette, Oregon	17,986
Wilmington, N. C	154
All other customs districts	1,656
Total	1,331,964

COUNTRIES FROM WHICH IMPORTED.

	Tons Bituminous.
Argentine Republic	3
Brazil	36
French West Indies	5
Great Britain and Ireland	235,048
Nova Scotia	24,409
Manitoba	39,335
British Columbia	616,644
British West Indies	15
British Guiana	2
British Africa	52
British Australia	354,675
Japan	4,660
Mexico	56,611
Africa	5
Cuba	140
Uraguay	14
Belgium	126
Italy	3
Portugal	5
Chili	175
Total	1,331,964

CUSTOMS DISTRICTS FROM WHICH EXPORTED.

	Tons Anthracite.	Tons Bituminous.
Baltimore	......	97,385
Barnstable, Mass.	12	
Boston	450	2
Brazos, Texas	2	......
Buffalo Creek.	26,483	......
Champlain	141,629	60,766
Charleston, S. C.	......	100
Corpus Christi	......	91,297
Cuyahoga, O.	......	179,147
Delaware, Del.	......	135
Detroit, Mich.	......	265,802
Erie, Pa.	2,844	2,085
Genesee, N. Y.	105,864	137,421
Huron, Mich.	......	35,543
Key West, Fla.	......	75
Miami, Ohio	......	79,669
Minnesota, Minn.	......	17
Mobile, Ala.	......	4,034
Newark, N. J.	3,850	......
New Bedford, Mass	6	......
New Orleans, La.	49	1,634
Newport, R. I.	13	......
Newport News, Va		92,072
New York, N. Y.	80,760	6,401
Norfolk, Va.	......	169,036
N. & S. Dakota	1,810	11,550
Oswegatchie, N.Y.	14,237	15,315
Oswego, N. Y.	400,385	......
Passamaquoddy	2,193	629
Pensacola, Fla.	1,984	16,709
Perth Amboy	8,764	2,953
Philadelphia, Pa.	16,236	402,477
Portland, Me.	30	......
Puget Sound, Wash	......	610
San Diego, Cal.	27	2
Sandusky, O.	515	26,237
San Francisco	......	997
Superior, Mich.	145	243
Vermont, Vt	......	100
Williamette	......	58
Total	808,277	1,700,496

COUNTRIES TO WHICH EXPORTED.

	Tons Anthracite.	Tons Bituminous.
Argentine	......	1
Belgium	......	3,690
Brazil	93	9,435
Costa Rica	......	1,165
Guatemala	......	55
Nicaragua	36	13,163
Salvador	......	12
Chili	566	2,288
Columbia	1,400	24,552
Denmark	......	3,597
France	......	41,069
French W. Indies.	3	43,209
St. Pierre Islands.	556	......
Germany	......	40,170
Great Britain	77	93,403
Nova Scotia	75,992	7,046
Canada	699,532	822,845
British Columbia.	......	1,155
Newfoundland	2,369	50
British W. Indies.	5,373	21,962
British Guiana	.....	804
Honduras	3	29
Africa	6	......
Hawaii	1,165	197
Haiti	72	876
Italy	......	3,771
Mexico	3,631	114,979
Netherlands	......	4,363
Dutch W. Indies.	101	......
Danish W. Indies.	142	56,856
Peru	125	......
Russia	......	2,861
Santo Domingo	474	211
Spain	......	4,473
Cuba	15,891	357,219
Puerto Rico	414	17,865
Sweden & Norway	......	1,255
Venezuela	247	5,164
Uraguay	......	698
Oceanica	......	4
Total	808,277	1,700,496

There is no city in the world that keeps such accurate records of the entry of food and fuel supplies within its borders as Paris. This is due to the fact that a high import duty is levied on almost every article of domestic use which is brought to this city. During 1891 the total amount of coal consumed in Paris was 3,279,000 gross tons, of which 1,512,000 gross tons were brought to the city by river and canal; 1,767,000 gross tons were of French origin, 647,700 gross tons came from Belgium, 418,500 from England and 129,900 from Germany. The large amount of charcoal used as fuel in Paris will bring the total consumption of fuel to 3½ million gross tons.

TEXAS LIGNITES.

Prof. Dumble, State Geologist, has made an exhaustive report on the brown coal and lignite of Texas, and says that they offer a supply of fuel for domestic and industrial purposes equal in all respects to the best of the European, which has come generally into use. Its nearness to market, the cheapness with which it can be mined, and its near approach in heating value, even in a raw state, to the Bituminous coals now in use, make it a most inviting field for development. Quoting his report, we find that he concludes, after all the information to be had, that:—

"Brown coal and lignite of good quality and under proper conditions are fully capable of replacing Bituminous coal for any and all household, industrial and metallurgical purposes, and have proved to be most excellent fuels where properly used. Texas has an abundant supply of brown coal which is equal to the best quality of that which has been utilized and far superior to much that is being used satisfactorily in other countries. The deposits are so situated and of such extent as to permit the mining of these brown coals and their delivery in the various markets of the State at prices far below anything which can be attained with Bituminous coals under the most favorable conditions, and the fuel values of the brown coals are such as to enable them, if heating power and price be considered, to compete with any of the Bituminous coals which are accessible. The methods of use which are positively assured for our Texas brown coals are: The raw coal may be used for all purposes in stoves and grates, under stationary boilers or locomotives, as part fuel in iron smelting, for burning all clay products, cement, lime, etc. In the form of producer gas it may be used for any and every purpose for which such a gaseous fuel is applicable. It can be made into illuminating gas and used for lighting and heating. It can be made into artificial fuel by briquetting with coal tar pitch or some similar agglomerant and the resulting briquettes will constitute a fuel which can be used in the same manner, as satisfactorily, and for the same purposes as any ordinary Bituminous coal. Certain varieties of our brown coal will form a coke, if charred, with bond of caking coal and coal tar pitch, which, even if it should not prove sufficienty firm for the blast furnace, will nevertheless answer for fuel for locomotive engines and other similar purposes. These are the facts. What use shall made of them, and what benefits derived from them, rests with the people of Texas, for whom they have been gathered, and for whose information they are here presented."

A note on the early use of the Illinois coals says:—"Mr. A. B. Meeker's Chicago Iron Co. (organized in 1867), established the fact that within 100 miles of Chicago there was an inexhaustible bed of coal 'as good or better than the Brier Hill or Ormsby or Brazil.' [The first two of these are Ohio mines, the latter is in Indiana.] After the tests were made, then it was shown that within 50 miles of Chicago were other beds of equally good coal. This discovery made a noise in manufacturing districts. Capt. Ward, of Detroit, came over and inquired into the matter. He resolved to try the experiment in his own works, and caused to be shipped home 30 tons of the black revolutionizing lumps. His report was that he successfully smelted Lake Superior ore with it. 'Even if not equal to the Brier Hill,' he wrote, 'it will take the place of that in many uses, leaving that for the special purposes for which it is wanted, and bringing down its price to the lowest possible figure.'"

THE NORFOLK & WESTERN RR. CO'S WESTERN LINE.

This line runs through West Virginia and connects the main line of the Norfolk & Western RR. with its Scioto Valley Division, and extends from the Pocahontas coal fields to the Ohio River. The distance is 184 miles to Kenova, on the Ohio River. At the latter point the line crosses the Ohio River bridge, completed and opened for traffic by the Norfolk & Western RR. Co. in November, 1891.

The company now has a direct through line from Norfolk, Va., to Columbus, Ohio, a distance of 707 miles. This line opens up the port of Norfolk, and also Southwest Virginia, to the Northwest and will be the means of bringing shipments of grain, provisions, and general merchandise from the North and West to the port of Norfolk, the distance via this line from Norfolk to Chicago being 1,020 miles. It will also place the Pocahontas coal fields and the new Kenova coal fields in connection with the North and West for coal and coke.

There are already eleven operations started in this field, four of which commenced shipping coal during the year 1892, and the others in various stages of progress during the current year. The names of these operators, commencing from the Ohio River, are as follows:—Coaldale Mining & Manufacturing Co., Hope Splint Coal Co., Ferguson Splint Coal Co., Dunlow Coal Co., Wells Branch Coal Co., Breeden Cannel Coal Co., O. V. Dibble, Pearl Coal Co., McCafferty & Morrison No. 1, McCafferty & Morrison No. 2, John D. Haggerty.

WAGES BASIS IN THE SCHUYKILL REGION.

In the Schuykill region of the Anthracite coal fields wages are paid on the basis of $2.50 per ton, at Schuykill Haven, plus any higher price that coal may sell at. This average price of coal on which wages paid are based was, in the past four years, as below:—

	'89.	'90.	'91.	'92.		'89.	'90.	'91.	'92.
January	2 54	2 37	2 33	2 26	July	2 40	2 19	2 23	2 50
February	2 50	2 32	2 31	2 22	August	2 36	2 19	2 24	2 60
March	2 39	2 24	2 22	2 29	September	2 33	2 24	2 29	2 68
April	2 39	2 16	2 24	2 29	October	2 35	2 29	2 30	2 74
May	2 30	2 19	2 20	2 30	November	2 37	2 29	2 35	2 67
June	2 38	2 24	2 22	2 38	December	2 42	2 35	2 34	2 64

The Chief of the Geological Survey in the Argentine Republic says of the coal therein: "There are no less than ten layers of coal in this (the Mitre) district. These layers run from east to west in an incline of 70 degs. We subsequently visited the Eloisa and Roca mines, where there is a layer $4\frac{1}{2}$ yards thick of pure coal. There are a number of minor layers. My opinion is that it is a true carboniferous formation. * * * I noticed a pronounced difference between the rocks of the Mitre and those of the other two mines."

The wages basis at the 'railroad' mines in the Pittsburgh, Pa., district is: "The price of mining $1\frac{1}{4}$-inch screen coal 79 cents per ton of 2,000 pounds, and $\frac{3}{4}$-inch screen coal 65 cents per ton of 2,000 pounds. Run of the mine shall be paid for on a basis of the average weight for wagons screened over a $1\frac{1}{2}$-inch screen.

BROAD TOP SEMI-BITUMINOUS COAL TRADE.

Statement exhibiting the amount of coal mined and sent to market in 1892 from the collieries of the Broad Top semi-Bituminous coal region :—

Name of Colliery.	Name of Proprietor.	Name of Operator.	Tons 1892.
Fisher	Fisher & Miller	Eichelberger & Co.	12,415
Hickes	H. & B. T. RR. Co.	A. H. & A. G. Hickes	7,207
Cumberland	John Cessna	H. & B. T. M. RR. & C. Co.	96,721
Fair Play	Reed, Wilson & Co.	Standard Coal Co.	5,207
Ocean No. 1	David Blair	W. H. Sweet	25,611
Ocean No. 2	Semi-Anth. Coal Co.	W. H. Sweet	35,345
Huntingdon	Orbeson, Dorris & Co.	E. F. Gould	17,000
Reed	Estate E. L. Benedict	W. S. Reed	31,075
Mt. Equity	H. & B. T. M. RR. & C. Co.	Kemble Iron Co.	67,626
Brown	Samuel T. Brown	Sweet & Brown	98,111
Duval	Rathmell Wilson's Estate.	E. P. Jenkins & Co.	927
Cunard	R. B. Wigton	R. B. Wigton & Sons	35,515
Elmira.	Six-Mile Run Coal Co.	David Fluke	5,690
Kearney	Joseph E. Thropp	Joseph E. Thropp	2,393
Chevington	H. L. Johnston	Lambirth CM. Co.	35,710
Crescent	H. L. Johnston	Lambirth CM. Co.	96,944
Cambria	Cambria Iron Co.	United Collieries Co.	37,036
Hopewell	Eichelberger & Sons	Eichelberger & Sons	978
Cambria No. 3	Raystown Branch Coal Co.	United Collieries Co.	36,700
Finley	Six-Mile Run C. Co.	B. C. Co.	2,388
Duval	J. Chester Wilson	Harvey CM. Co.	205
Daugherty	Daugherty Heirs.	Shreevas Run C. Co.	325
Total net tons			651,130

Cumberland coal carried by H. & B. T. RR., 1,293,475.

THE GREAT KANAWHA COAL DISTRICT.

Mr. W. S. Edwards, in his pamphlet on West Virginia, says: "Although coal was dug and taken from the lower beds of the Lower Kittanning (Campbell's Creek) along its outcrop in the river hills near the Kanawha Salines, for many years previous to 1840, yet its use was largely experimental and intermittent, the fuel being applied to the running of salt furnaces and boiling of brine whenever the supply of wood ran short. Here and there an occasional opening into the lowest seams had been made to supply the local blacksmiths with coal, but generally wood was used in the cabins. It was not until about the year 1849, and thereafter, that the systematic exploration of the mountains and hills of the Great Kanawha valley was undertaken with a view of determining its value as a coal producing field. Cannel coal had then recently been found along the hills of Coal River by William M. Peyton, of Roanoke, and below Smither's Creek, on the Kanawha, by Col. Aaron Stockton, and it was with a view of determining whether or not this valuable fuel might not be found in the mountains south of the Great Kanawha River that Mr. William H. Edwards, owner of the Wilson survey of 85,000 acres, embracing most of the coal lands immediately south of the river, instituted, in the years following 1849, elaborate investigations in search of coal. In 1850, the big bed of the Lower Freeport seam was discovered on Paint Creek. This seam was subsequently traced down the creek and along the river hills to where the village of Coalburgh and the famous mines in that seam are now located. In the year 1854, the beds of Cannel coal upon Paint Creek were discovered by the late Mr. Alvah Hansford. About the year 1857, mines were opened upon Paint Creek, and refineries established for roasting the Cannel coal and extracting oil and paraffine. A few years earlier similar works were erected at Cannelton, and a good deal of Cannel coal was taken from the Stockton Cannel bed in the Upper Freeport seam, and an abortive attempt was made at Forest Hill to manufacture oil from a Bituminous shale. The discovery of petroleum and the outbreak of the civil war brought these operations to a final close. About the year 1853, also, mines were established upon Field's Creek, in the Upper Kittanning seam, where are now the Winifrede collieries and coal was taken by rail to the Kanawha River and shipped thence to Cincinnati and the lower Ohio in flat boats, when the waters were sufficiently high to permit it. The wild condition of the river, however, and frequent losses of entire boat loads of coal brought this enterprise to an early termination. With the close of the civil war, coal mining operations were again begun, and mines were established at Campbell's Creek, at Coalburgh, and some short-lived attempts were made to take coal from the Freeport seams along Lower Elk River. Mines were also opened in the Pittsburgh [seam in Putman County, near the mouth of the Pocatalico River at Raymond City.

"The development of the Great Kanawha field since the inauguration of the deep water improvement of the river by the United States Government, and the completion of the Chesapeake & Ohio Ry., has been notable At the time of commencement of these locks and dams, and, also, of the completion of this railroad, there were but two collieries working and shipping coal above Charleston, each shipping by water—the Kanawha & Ohio Coal Co., at Coalburgh mines, and the Campbell's Creek Coal Co., at Campbell's Creek mines, and one mine below Charleston—the Raymond City Coal Co., at Raymond City, in Putman County. With the inauguration of the great system of free locks and dams, and the completion of the railroad, the coals of this field began to go forth into markets both East and West in increasing tonnage, and have, at the present time, close of 1891, reached an enormous output."

According to the census of 1890 the Rocky Mountain group, consisting of the States of the Dakotas, Montana, Wyoming and Colorado and the territories of Utah and New Mexico, produced in 1889 a fraction over 5,000,000 tons of coal. Wyoming's share of the total was 1,388,947 tons and Utah's output 236,657 tons. The coal area of the group is not known and is variously estimated at from 100,000 to 200,000 square miles, but this is guesswork. It is claimed coal can be found in every county in Wyoming, and the area which coal underlies is estimated at 19,000,000 acres. The principal working mines are in the vicinity of Rock Springs, nearly all owned by the Union Pacific Co. Coal mining on a smaller scale is carried on at New Castle, Laramie and other points. The coal area in Utah is estimated at 2,000 square miles. Operations have not been carried forward on a large scale, owing to limited transportation facilities, and the fact that Rock Springs coal has the inside track to the local market. In both Wyoming and Utah there is an abundance of cheap fuel close at hand for all purposes for ages to come.

WIRE ROPE HAULAGE AT BIG SOLDIER RUN, PA.

Mr. W. C. Elliott, of Reynoldsville, Pa., states that this system is entirely a new departure in wire rope haulage, made not only possible but practicable under the favorable conditions presented. The mine was opened with a full knowledge of the location and condition of the coal seam. It was known that the coal descended to the southeast on a grade of 123 feet to the mile. This descent is against the traffic; that is, the coal must be hauled up hill. This grade is too much to work any traction engine profitably whether operated by steam, electricity or compressed air, especially inside a mine where the rails are always wet and slippery. Therefore only a wire rope could be depended on to do the work.

The Bell, Lewis & Yates CM. Co. had some years ago installed a wire rope plant at Rochester mine on the 'tail rope system' and while it is one of the best of its kind in the country, if not in the world, yet there were some objectionable features connected with it, notably, strain upon cars, and too great wear of rope caused by abrasion in being wound upon itself on the drums. Experience shows more damage comes to the ropes by this than in actual labor in hauling trains. To obviate this undue wear and also prevent accidents caused by breakage of couplings through excessive strain on the train of mine cars, it was decided to put in an endless rope, but operate it as a tail rope; that is to run it backwards and forwards, instead of in one direction continuously, as endless ropes are usually run, In operating an endless rope no drums are used on which the rope is coiled like thread on a spool, but wheels, with grooves in are used in which the rope runs, and which creates friction enough to prevent the rope from slipping. These grooved weeels are attached to shafts which, in turn, are geared to a pair of large engines, and the slack, which necessarily comes from the elasticity of the rope is taken up by a travelling grooved wheel which has a heavy weight attached to it. In about all systems of endless ropes the apparatus for taking up the slack is placed at the end of the plant farthest away from the engines. At Big Soldier Run it is placed immediately in the rear of them and this arrangement is one reason of the great success of this work. All the rope while doing the labor of hauling the coal is without other strain than that coming from moving the cars. The trains are attached to the rope by a device known as the grip, which can be fastened or loosened instantly. When the train is ready to be drawn out the grip car is attached to it, the rope seized and the signal given, by electricity, to the engineer at the power house who forthwith starts the machinery, and the train moves forward as gently as the most perfectly arranged train of passenger cars. A speed of 8 or 9 miles an hour can be safely made with loaded cars, as the road is perfectly straight and with but very slight change of grade. When a train of empties is ready to be taken in the grip car is attached as before, and the signal given and the direction of the rope reversed and the train taken to its destination. The rope is not in motion when trains are attached, hence there is no jerk or sudden start.

The Southwest Virginia Improvement Co. exhibited at Roanoke, Va., last June, a block of coal weighing 12,700 lbs. They hope to be able to produce a much larger block, to send to the Exposition at Chicago.

NOVA SCOTIA.

The total output in the years specified has been :—

1887	1,670,838 tons.	1890	1,984,001 tons.
1888	1,776,128 tons.	1891	2,044,784 tons.
1889	1,756,279 tons.		

The tonnage reported as sold, since the beginning of the industry, in the Province, in 1785, up to and including the year 1886, is put at 24,859,229 gross tons. Sales in the years named have been :—

1887	1,519,684 tons.	1890	1,786,111 tons.
1888	1,576,692 tons.	1891	1,849,945 tons.
1889	1,555,107 tons.		

The markets were as stated herewith :—

Markets.	1888.	1889.	1890.	1891.
Nova Scotia	509,905	550,425	601,946	639,737
Quebec	678,321	631,796	751,931	775,286
New Brunswick	214,630	195,174	224,786	229,315
Newfoundland	83,725	87,543	96,133	108,617
Prince Edward's Island	56,349	54,940	55,843	67,473
United States	30,198	29,986	50,754	25,431
West Indies	3,111	3,983	4,708	4,086
Other Countries	453	1,260	....	....
Total	1,576,692	1,555,107	1,786,111	1,849,945

The colliery consumption was 174,983 tons in 1891.

The tonnage in 1892 was somewhat less than during the preceding year. The sales of coal in the two years are appended.

Collieries.		Tons 1891.	Tons 1892.
CUMBERLAND COUNTY—	Spring Hill mines	406,000	362,000
	Joggins	54,000	64,000
	Small collieries	2,000	2,000
PICTOU COUNTY—	Intercolonial	136,000	183,000
	Acadia Co	249,000	218,000
	East River	2,000	2,000
	Black Diamond	17,000	....
CAPE BRETON COUNTY—	Sydney	147,000	167,000
	Victoria	96,000	107,000
	Reserve	155,000	135,000
	Ontario	3,000	....
	International	125,000	105,000
	Gowrie	152,000	133,000
	Glace Bay	110,000	94,000
	Gardiner	17,000	40,000
	Bridgeport	33,000	34,000
	Caledonia	145,000	115,000
Grand total		1,849,000	1,763,000

Sales of Nova Scotia coal to St. Lawrence River ports in 1892, were: 491,885 tons to Montreal, 75,620 tons to Quebec, 9,012 tons to Three Rivers, and 13,586 tons to Sorel. It may be mentioned that 50,101 tons English coal came to Montreal, Quebec and Sorel last year; there was also a cargo of 3,450 tons American (U. S.) smithing coal received in Montreal in 1892.

THE BIG SOLDIER RUN MINE.

The Bell, Lewis & Yates CM. Co's Big Soldier Run outside plant (in Jefferson County, Pa.,) is an immense affair. The entrance to the mine is walled up with heavy cut stone work and each of the four parallel headings is arched with nicely cut and massive masonry. The front is flanked on each side by wings which serve, as does that portion between the entries, as retaining walls. The entries are twenty-five feet from centre to centre and the whole front between the wings is 104 feet wide.

"The boiler house is 38 feet wide, 82 feet long and 16 feet high, it is covered with an iron roof and built of brick. Standing nearly in the centre of this building, with boilers on two sides of it, is the double-wall brick chimney. This is thirteen feet square at the base, eleven feet square at the top and is 103 feet high. It rests on a solid foundation of cut stone laid in cement reaching to the bed rock.

"Adjoining the boiler house and with it forming a T, is the engine house 32 feet wide by 50 feet long and of the same height as the boiler house. Like the latter it is built of brick and covered with iron. Surmounting the roof is a tower twelve feet square in which is stationed the engineer, who controls the movements of the wire rope haulage plant. From his elevated station he can overlook the yard or landing place of loaded cars and can even see a light in the mine, a distance of over two thousand feet. The engineer's room is connected with the entire length of wire rope by an electric current by which signals can be given to the engineer from any point along the line. The engine house is arranged for two sets of haulage engines. The engines are coupled to one driving shaft and are provided with a steam reversing gear whereby the direction of the travel of the rope can be changed at will. The cylinders of this pair of engines are 16×24 inches. Just below the boiler house is a reservoir for water which is about 50×100 feet and five feet deep. This is kept full from a large storage pond nearly three-fourths of a mile distant. The buildings, etc., just described, may aptly be termed the power plant, as their sole purpose is to furnish power for wire ropes, ventilating fans and mining machines.

"In addition to the above there is an iron and steel structure erected and used for a tipple building which is 126 feet long, 56 feet wide and 45 feet high to the eaves. There is an overhang or shed at one end 14 feet wide which makes the total length of the roof 140 feet. Besides this there is an approach from the top of the bank to the tipple building about 90 feet long and 36 feet wide. In this building there are two sets of mine scales, two weigh offices and six dumping places, four of which will be for screened coal. The whole frame work of this building together with covering of roof is of iron and steel. It rests on substantial stone foundations which were put down to a solid bottom and laid in hydraulic cement. Besides the buildings mentioned there is an oil house, a building for men to stop in while waiting, or to eat dinner in, and a combined carpenter and blacksmith shop. The latter building is 30×75 feet. It is erected of wood but has a felt and gravel covering. The grounds are graded and will be seeded down and neatly fenced.

"There are eight dumping places in the big tipple. There are seven tracks for loading cars underneath the big iron structure. The empty cars are set in at the upper end of the yard by the locomotive, from whence they are dropped by gravity to the places for loading and from there again dropped down to and over the railroad track scales and from there to the various sidings and made up into trains for transportation. There is one track for Buffalo, one for Rochester and one for eastern shipments. Besides these is a track for coal going via the Pennsylvania system from Falls Creek. Thus the trains will be made up without the use of a locomotive as the natural grade of the ground gives the proper descent to the track."

THE BERWIND-WHITE COAL MINING CO.

The Berwind-White CM. Co. was incorporated in 1886 as the successor of Berwind, White & Co., a coal producing firm which had been organized in 1874 from the still older firms of Berwind & Bradley and White & Lingle. The capital stock of the present corporation is $2,000,000 and its executive officers are Edward J. Berwind, President; John E. Berwind, Vice President; H. A. Berwind, Secretary; and F. McOwen, Treasurer. The company owns and operates extensive coal mines in Clearfield and Jefferson Counties in Pennsylvania and is mining what is known as the Eureka steam coal.

Twenty-nine collieries are operated, twenty-two of which are at and around Houtzdale, two at Karthaus and five at Horatio, all of which have an aggregate capacity of upwards of 15,000 tons a day. The tonnage of the company for 1892 reached three and a half million tons. The works of the company are among the best equipped in the Bituminous coal regions, being supplied with every modern impovement and labor saving machinery, and calculated to expedite and econonomize the cost of the production of coal, as well as to insure its reaching the market in strictly first class condition. The company also owns and operates three hundred coke ovens where a very superior grade of coke is turned out which finds a ready market among manufacturers and steel workers. The Berwind-White Co. owns 3,000 coal cars and a fleet of sixty barges used exclusively for the delivery of coal to ocean steamships in New York harbor; the coal is of the highest grade of steam coal and is supplied under a yearly contract to near all transatlantic and coasting lines running from New York, Philadelphia and Boston, among which are the Inman, the North German Lloyd, the Hamburg, the Cunard and the French lines, whose gigantic and palatial ocean greyhounds have a world wide reputation. This coal is also supplied to nearly all the railways in the Eastern and Middle States for locomotive use. It is likewise largely used for rolling mills, iron works, forges, glass works and lime kilns, in the burning of brick and for kindred purposes. The mines are located on the Pennsylvania RR., or lines acessible thereto over which they ship to tide-water for shipment coastwise and foreign, to New York, the New England States and Canada. The company's shipping piers are located at Greenwich Point; Philadelphia; Harsimus Cove, Jersey City, New York harbor; and Canton Piers, Baltimore. The general offices of the company are in the Bullitt Building, Philadelphia; at 55 Broadway, New York; at 19 Congress St., Boston; and Rialto Building, Baltimore. The Berwind-White Co. is the largest Bituminous coal mining company in America employing 5,000 men and an extensive staff of mining engineers, accountants, etc.

The company's shipping point in New York is at Harsimus Cove, Jersey City, just north of the Pennsylvania RR. freight pier. It consists of an extensive pier which reaches from Henderson street to the North River, and is supplied with two main tracks with such sidings as are required for the proper handling of coal cars, and so arranged as to load six barges at the same time; there are extensive sheds capable of storing many thousand tons and also a weighing house and suitable offices. The pier reaches to deep water and can give accommodations to ships of the deepest draught so that coal can be loaded directy to the ships from the company's sheds or trains. The pier is also the home station of the company's fleet of specially constructed tugs and barges which are chiefly engaged in the transshipment of coal to various points in and around the harbor. The business transacted by the Berwind-White Co. is by far the most extensive in steam coals either in Europe or the United States.

LEHIGH VALLEY COAL CO.

The operations of the Lehigh Valley Coal Co. for the year ending November 30, 1892, condensed from the report of W. A. Lathrop, general superintendent, compared with the two preceding years, were as follows:—

	Tons 1892.	Tons 1891.	Tons 1890.
Anthracite from collieries owned and operated by the company...	1,454,262	1,385,463	1,464,509
Anthracite coal shipped by tenants of the company..........................	3,096,271	3,247,632	2,499,562
Total..	4,550,533	4,633,095	3,964,071

The tonnage of the Lehigh Valley RR. Co. in the past fiscal year was 10,559,228 tons Anthracite, and 313,671 tons Bituminous coal and coke. In the last annual report of the railroad company, it is stated that "under date of February 11, 1892, the railroads, public works, transportation lines and appurtenances of this company were leased and transferred to the Philadelphia & Reading RR. Co. for the full period of 999 years from the first day of December, 1891. The lease guarantees rentals equal to five per cent. per annum for the six months ending May 31, 1892; six per cent. per annum for the six months ending November 30, 1892, and thereafter seven per cent. per annum, together with 50 per cent. of all surplus net earnings, but not in any one year exceeding in all an amount equal to 10 per cent of the then outstanding capital stock."

It is commonly known that the disposition of the coal seams upon the Continent necessitates the carrying on of mining operations at very considerable depths. In Belgium, and in the center of France particularly, the thin upper seams are being fast worked out, and it is found necessary to go deeper, with the result that richer deposits are being discovered. At the same time the difficulties of mining are greatly increased, and this is strikingly evident at Flenu-les-Mons in Belgium, where a depth of from 350 feet to 3 500 feet is being attained.

In the past year a compilation of analyses, historical notes, etc., regarding the southern West Virginia coals and cokes has been issued by Mr. William Seymour Edwards, of Charleston, W. Va.

THE COAL TRADE OF NEW ENGLAND.

Something over 6,000,000 tons of hard coal go to the New England States annually, while the soft coal is also put at 6,000,000 tons of coal of all kinds. This large tonnage reaches there by many and various ways; by water and by rail lines of transit. Soft coal, by water from Newport News, Norfolk, Baltimore, Philadelphia and a little from Amboy, N. J.; by rail from West Virginia and Maryland in small quantities, and from nearly every soft coal district of importance in Pennsylvania, crossing the Hudson by floats, bridges or in barges. Hard coal, by water from Philadelphia and the New York ports—so called; by rail—crossing the Hudson at New York on floats, at Newburgh on floats, at Poughkeepsie by bridge, at Rhinebeck by boats, thence into cars; at Albany and Troy by bridge.

It is difficult to obtain any tonnage statistics at many of the ports on the coast; we synopsize those facts and figures which we have been able to procure:—Portland, Maine, say 225,000 tons of Bituminous, and 190,000 tons of Anthracite; Portsmouth, N. H., say 160,000 tons of hard coal and 150,000 tons of soft coal; Salem, Mass., say 200,000 tons hard, and 150,000 soft; Providence, R. I., 850,000 tons; Pawtucket, R. I., 135,000 tons; New London, Conn., 200,000 tons, say half soft coal; Norwich, Conn., 300,000 tons; New Haven, Conn., 700,000 tons; Bridgeport, say 275,000 tons, of which 100,000 tons is soft coal. At Boston, Mass., we have the record of 2,065,000 tons Anthracite, and 875,000 tons Bituminous by water. The growth of the all-rail business on both qualities of fuel has been great during the past year, and it is likely to still further increase, owing to the efforts of the Philadelphia & Reading system to build up a tonnage with the aid of its newly-acquired lines in this portion of the country.

FURTHER OHIO STATISTICS.

The report of Hon. W. T. Lewis, State Labor Statistician, for the year 1892, shows:—Total number of mines reported 283, of which 270 are pick mines and 13 machine mines. The coal is owned in 150 mines and leased in 108. Total employees, 15,732 miners, 568 boys, 3,065 inside laborers, 1,825 outside laborers; total, 21,190. Pick mines produced:—Lump coal, 6,759,396; nut coal, 1,055,993; pea and slack, 1,034,276; run of mine, 535,988; lump and nut, 249,114; nut and slack, 262,174; mixed coal, 109,520; egg, 2,730; chestnut, 1,280; total, 10,010,469. Average number of tons of lump coal per ton of nut coal, 6.4.

Machine mines produced:—Lump, 1,481,101, nut, 235,986; slack, 75,029; pea, 800; total, 1,792,916.

In Athens, Hocking and Perry counties twelve mines reported 89 machines and an output:—Lump, 1,477,630; nut, 235,986; slack, 75,029; totals, 1,788,645. Average number tons of lump per ton of nut, 6.2.

It is reported that the shipments of coal from the Lake Erie ports under the joint arrangement of the Ohio and Western Pennsylvania RR's was as follows, in 1891:—Ohio coal 1,848,983 tons. Pittsburgh coal 1,152,948 tons. West Virginia 150,825 tons.

THE PHILADELPHIA & READING RR. CAPITALIZATION.

By a report submitted to the Department of Internal Affairs of Pennsylvania, for the year ending June 30th, 1892, it is learned that the company owns or leases and operates thirty-nine lines with a total mileage of 1,916 miles, of which 1,353 are in Pennsylvania. The capital stock outstanding is $40,105,361.78. The funded debt is $153,800,402.45, with accrued interest of $6,013,902.95.

The funded debt is made up as follows :—

Principal mortgage loans of 1900	$ 2,466,700 00
Principal mortgage loans of 1900	79,000 00
Principal mortgage loans of 1893	2,700,000 00
Conv. mortgage loans, 1911	8,162,000 00
Conv. mortgage loans, 1911	10,649,000 00
Improvement loans, 1897	9,364,000 00
Income loans, 1896	1,000 00
Consol. loans, 1922	5,767,042 00
Consol. loans, 1933	1,535 00
General loans, 1958	38,604,658 77
First preferred income loans, 1958	23,948,809 45
Second preferred income loans, 1958	16,176,413 78
Third preferred income loans, 1958	1,797,099 67
Real estate bonds	2,119,756 69
Conv. adj. scrip	1,810 00
Debenture loans, 1893	1,100 00
Debenture loans, 1893	6,000 00
Debenture loans, 1898	1,000 00
Debenture loans, 1941	5,388,000 00
Debenture conv. loan, 1893	10,800 00
Debenture and guar. scrip, 1882-4	7,250 00
Deferred income bonds	7,670,427 09
Sinking funds, 1902	2,000,000 00
Purchase money, 1942	700,000 00
Total	$153,800,402 45

To the above must be added car trust obligations amounting to $3,514,000, making a total of $157,314,402.45. A recapitulation of the total amount outstanding is as follows :—

Capital stock	$ 40,105,361 78
Bonds	153,800,402 45
Car Trust	3,514,000 00
Total	$197,419,764 23

The capital stock of the roads operated by the Philadelphia & Reading, not including its own, is $108,536,851.25, and the funded debt of their roads is $205,416,702.45.

The plant of the Dunlow Coal Co. is located on the line of the Ohio extension of the Norfolk & Western RR., being but a short distance west of the thriving new town of Dunlow, Wayne County, W. Va. Dunlow is situated near the western end of the celebrated Twelve Pole River Splint and Cannel coal field, and is 46 miles from Kenova, W. Va., 185 miles from Columbus, O., and 522 miles from Norfolk, Va. The coal analyses 2.87 water; 39.77 vol. matter; 51.30 fixed carbon and 6.06 ash.

SOFT COAL EAST OF THE ALLEGANIES.

District.	Opened.	1880.	1890.	1892.
Clearfield	1866	1,739,873	3,165,288	2,867,777
Georges Creek	1842	2,136,160	3,221,087	3,058,350
Beech Creek	1884	....	2,081,173	2,763,145
Blossburg	1840	921,555	888,771	980,929
Broad Top	1856	291,132	683,482	641,130
Meyersdale	1872	187,660	275,000	300,000
Elk Garden	1881	.. ..	774,904	971,214
Pocahontas	1883	......	2,053,000	3,000,000
Chesapeake & Ohio	1877	606,664	2,056,573	2,464,973
Barclay	1856	462,866	193,947	53,517
Snow Shoe	1862	56,020	175,000	125,816

C. & O., Georges Creek, Elk Garden and Broad Top in gross tons.

ALLEGHENY VALLEY RAILROAD COAL TONNAGE.

Below is the movement over the Allegheny Valley RR. of coal and coke, in net tons of 2,000 pounds:—

	1888.	1889.	1890.	1891.	1892.
Coal	1,229,192	1,093,156	1,166,900	1,402,250	1,621,473
Coke	273,936	357,297	382,762	274,453	260,921

THE NOVA SCOTIA SYNDICATE.

Mr. H. M. Whitney, of Boston, in connection with others, some Canadians and some Americans, intend to take over a number of mining properties. The underlying idea of the whole scheme is to bring into one large organization, with ample capital, a considerable number of properties, no one of which operated separately has been able to make the large expenditure necessary to the most economical production and transportation. The saving over the old and imperfect methods now in vogue, simply by the adoption of the best known processes and appliances by a large and systematic system of working, will enable them to extend the coal trade of the country enormously. They contemplate the extension of the coal trade to the West Indies and even to South America, and believe that the enterprise will have an important bearing on the extension of the general trade of Canada in that direction.

One of the largest savings will be in improved transportation facilities in the Gulf and the River St. Lawrence. For instance, the steamers now in use for bringing Cape Breton coal to Montreal are mostly "tramp" steamers, but with no especial reference to the work, and with a carrying capacity of 2,000 tons or thereabouts. A steamer carrying 3,000 or 4,000 tons can be run nearly as cheaply as one carrying 2,000 tons, and if such a steamer had the power and necessary equipments for towing one or two barges of equal capacity, as is the custom in the States and on the lakes, it is easy to see that a good business can be done without at least any increase in the present cost of coal to the people of Montreal.

By means of the best and most ample facilities for transferring coal at that port they expect to be able to distribute Cape Breton coal through the country west of Montreal far beyond any point it has reached in the past. The methods now in use in Canada for handling and transporting coal are very much behind the times as compared with those in use elsewhere. This is partly due to the small output of the individual mines, which is again in part due to the fact that the present mining leases leave it to the discretion of the provincial government to change the royalty from year to year and impose new conditions. This, of course, has effectually prevented the development of these properties.

Referring to the terms of the leases under which the syndicate will operate, it is said:

1. The present term for coal leases is eighty years; the term for the new lease is to be ninety-nine years.
2. The Government give absolute right to transfer, but this only applies to Cape Breton County, where Mr. Whitney and his associates are confined, they not being allowed under their lease to touch any coal mines outside Cape Breton County.
3. While the present leases impose no penalty for shutting down the mines, excepting a rental of $30 a year for each square mile, in the new lease the Government has taken care to impose an effectual check against the possibility of this. They require the lessees to work the mines effectively, and if they attempt to shut down they have to pay the full royalty for the output in the highest year of the productive history in Nova Scotia—1891.

TENNESSEE COAL, IRON AND RAILROAD CO.

	1890.		1891.		1892.	
Derived from:	Coal.	Coke.	Coal.	Coke.	Coal.	Coke.
Pratt mines	1,107,741	259,794	1,129,848	....	1,226,104	....
Tracy City	349,389	100,454	400,520	130,735	358,023	123,675
Whitwell	164,183	50,968	213,212	65,000	200,000	60,000
Total (net tons)	1,621,313	411,216	1,743,580	195,735	1,784,127	183,675

Coke is made from a portion of the coal mined, and therefore is not to be added to the coal mined. At the Pratt mines, Blue Creek, Blocton and Gurnee, in Alabama, the output is said to have been 2,606,215 tons coal, and 704,238 tons coke in 1892.

An electric safety mining lamp invented by G. J. Pitkin, of London, Eng., consists of a miniature two and one-half candle power incandescent light operated by a four cell storage battery capable of receiving eight volts of electricity, but which is never stored with more than five, as the increased current wears the filament. With five volts of electricity the lamp will burn ten hours, throwing out sufficient light for a large gang of men to work in a chamber. The lamp is inclosed in a wooden case, 7 inches by 4½ inches in size, and weighs about ten pounds.

The first boat to take on coal at the new dock of the O. & W. Ry Co. at Cornwall, N. Y., was the *Noah Slee*, and she began loading on October 3, 1892. The coal trestle extends into the river 818 feet from the bulkhead line, and nearly at right angles with the shore. The pier is 50 feet in width, and composed of 69 bents of double rows of yellow pine piles, with prace piles and fenders twelve feet apart.

ANTHRACITE OUTPUT IN DETAIL FOR 1891.

Below are the figures given in the reports of the Mine Inspectors, for the calendar year 1891. Total *output* is represented as distinguished from *shipments* reported by the carrying companies:—

FIRST AND SECOND DISTRICTS.

D., L. & W. RR. Co	2,771,945
Delaware & Hudson Canal Co	2,302,132
Hillsdale C. & I. Co	949,132
O. S. Johnson	477,583
Wm. Connell & Co	408,721
John Jermyn	297,707
Lackawanna I. & C. Co	486,358
Simpson & Watkins	510,903
Pennsylvania Coal Co	372,217
Church Coal Co	14,107
Providence Coal Co	71,596
J. Flynn & Co	4,546
Dolph Coal Co	69,489
Reese & Moser	43,501
Moosic Mountain Coal Co	63,597
Mount Jessup Coal Co	69,679
Mount Pleasant Coal Co	186,982
Murray & Jackson	19,564
Jones, Simpson & Co	165,200
Grassy Island Coal Co (shaft)	2,582
New York & Scranton Coal Co.	68,037
Pierce Coal Co	99,145
Pancoast Coal Co	186,485
Rushbrook Coal Co	33,411
Riverside shaft	4,606
A. D. & F. M. Spencer	146,100
Winton Coal Co	70,344
Tripp & Co., local	15,400
John Murrin, local	2,222
Mill Creek, local	4,376
West Side Coal Co., local	2,299
Frisbie Coal Co	10,962
W. M. Weeks, local	3,450
Elk Hill C. & I. Co	42,328
Total gross tons	9,976,716

THIRD DISTRICT.

Pennsylvania Coal Co	1,410,365
Lehigh Valley Coal Co	621,503
Del. & Hudson Canal Co	501,750
D., L. & W. RR. Co	251,054
Butlery Colliery Co	188,040
Newton Coal Co	249,651
Wyoming Valley Coal Co	96,722
State Line & Sullivan RR. Co.	74,884
Thomas Waddell & Co	201,565
John C. Haddock	175,679
Clear Spring Coal Co	173,306
Hillside C. & I. Co	154,404
Jermyn & Co. (Dunn shaft)	196,742

THIRD DISTRICT

Elliott, McClure & Co	132,482
Florence Coal Co	118,299
W. G. Payne & Co	195,986
Abbott Coal Co	18,436
Keystone Coal Co	99,742
Old Forge Coal Co	149,724
Avoca Coal Co	62,868
Stevens Coal Co	23,977
Annora Coal Co	155,687
Langcliffe Coal Co	172,059
John M. Robertson & Co	25,715
Greenwood Coal Co	158,735
Babylon Coal Co	180,484
Jermyn & Co, (Jermyn No. 2)	132,625
Wm. Connell & Son	160,868
Mt. Lookout Coal Co	30,841
John A. Hutchins & Co	10,896
Total gross tons	6,125,099

FOURTH DISTRICT.

Lehigh & Wilkes-Barre Coal Co.	2,026,497
Del. & Hudson Canal Co	1,125,402
Susquehanna Coal Co	1,466,446
Kingston Coal Co	759,663
D., L. & W. RR. Co	359,515
Lehigh Valley Coal Co	243,973
Red Ash Coal Co	296,877
Alden Coal Co	257,787
Plymouth Coal Co	187,126
Parrish Coal Co	302,867
Hanover Coal Co	137,865
West End Coal Co	193,333
Newport Coal Co	65,194
Hillman Vein Coal Co	118,443
Warrior Run Coal Co	98,257
Total gross tons	7,639,230

FIFTH DISTRICT.

A. Pardee & Co	613,359
Coxe Bros. & Co	1,404,201
Lehigh Coal & Navigation Co	620,808
G. B. Markle & Co	445,723
Linderman & Skeer	440,481
Upper Lehigh Coal Co	388,864
J. C. Haydon & Co	305,365
Pardee Bros. & Co	237,041
Calvin Pardee & Co	144,662
Pardee Sons & Co	89,437
C. M. Dodson & Co	214,992

FIFTH DISTRICT.

A. S. Van Wickle & Co	226,828
Geo. H. Myers & Co	141,751
M. S. Kemmerer & Co	139,948
W. T. Carter & Co	131,448
Lehigh & W.-B. Coal Co	111,963
John S. Wentz & Co	96,085
Evans Mining Co	50,964
Total gross tons	5,803,964

SIXTH DISTRICT.

Phila. & Reading C. & I. Co	3,899,765
Lehigh Valley Coal Co	499,611
Lehigh & Wilkes-Barre Coal Co	434,825
Lilly, Lentz & Co	341,320
Coxe Bros & Co	19,486
Wm. Penn Coal Co	281,000
Draper Coal Co	182,521
Silver Brook Coal Co	148,900
Mill Creek Coal Co	156,302
Thomas Coal Co	122,367
J. C. Haydon & Co	93,271
Kneval & Co	95,316
Lawrence & Brown	130,868
Cambridge Coal Co	3,591
Seaman Bros. & Co	10,161
Total gross tons	6,419,320

SEVENTH DISTRICT.

Phila. & Reading C. & I. Co	2,523,546
Mineral RR. & Mining Co	553,597
Summit Branch RR. Co	356,544
Lykens Valley Coal Co	268,023
Union Coal Co	482,919
L. A. Riley & Co	366,823
Midvalley Coal Co	98,524
Excelsior Coal Co	178,844
J. Langdon & Co	143,890

SEVENTH DISTRICT.

Enterprise Coal Co	71,599
Thomas M. Righter & Co	86,054
May, Troutman & Co	56,203
D. Bickel & Co	9,847
Smith & Keiser	15,561
Phillips, Nagle & Co	39,150
Patterson A. Mining Co	7,000
Total gross tons	5,258,125

EIGHTH DISTRICT.

Phila. & Reading C. & I. Co	1,579,733
Lehigh Coal & Nav. Co	642,228
Lehigh Valley Coal Co	94,569
Middle Lehigh Coal Co	143,793
Dodson Coal Co	181,719
Leisenring & Co	86,662
Thomas Oliver	43,535
Flowery Field	2,308
Young & Co	5,570
J. H. Davis & Bros	17,811
Tyler & McTurck	17,292
Denning Bros	6,196
Jos. Mitchell	6,598
Thompson & Hyat	15,850
Linderman & Co	20,212
C. B. Selliman	4,184
Sullivan	3,440
Thomas Crockson	3,267
Lytle Coal Co	4,408
Total gross tons	2,879,363

From a carefully compiled statement of the coal mined at some ten large collieries in the Lehigh district of the Anthracite regions of Pennsylvania, the following shows the percentages of coal shipped from the works by rail, consumed at the collieries for steam and other purposes and locally sold to employees and others residing adjacent to the collieries: Of the first, or shipments, 87½ per cent. Of the second, or colliery boiler use, 11¼ per cent. Of the third, or sales locally, 1¼ per cent. And this with a large local outside trade. It has been commonly estimated that 5 per cent. was a fair figure to take for colliery boiler use, while about an equal amount was sold at the collieries.

An analysis of the coal found in the second seam of the Drummond colliery, Nova Scotia, made by Prof. Donald, of Montreal, shows: 22.32 vol. matter; 68.14 fixed carbon; 8.46 ash, and 1.08 moisture.

COAL WHARVES OF BOSTON AND VICINITY, JANUARY 1st, 1893.

Compiled from as reliable information as it has been practicable to obtain.

NAME.	LOCATION.	Draft.	Bridges.	Narrowest Draw.	
		Ft.		Ft.	In.
Abbott, J. G.	Charlestown	16	1	38	10
Adams, D. F.	Lynn	14	0		
Bail, G. W.	South Boston	11	0		
Batchelder Bros.	Howe's Wharf	20	2	40	4
Bean, Jas.	Medford	9½	5	43	
Bennett, Frank E.	Winthrop	12	0		
Boston Terra Cotta Co.	Boston, South End	13	3	40	4
Boston & Albany RR. Co.	Boston, South End	20	5	36	
Boston & Albany RR. Co.	East Boston	25	0		
Boston & Maine RR. Co.	Boston, North End	20	3	35	11
Boston & Maine RR. Co.	B. & L. Mystic	22	0		
Boston & Maine RR. Co.	Mystic River	16	3	43	4
Bradford, J. A. & Co.	Boston, South End	16	7	36	
Burnham, L. G. & Co.	Boston, South End	16½	7	36	
Burnham, L. G. & Co.	Boston Wharf	26	2	40	4
Burnham, L. G. & Co.	East Cambridge	14½	6	35	9
Holder & Breed.	Lynn	16	0		
Burr, G. W.	Hingham	9	0		
Campbell, C. A. & Co.	Chelsea	20	0		
Cashman Bros.	Lynn	12	0		
Chapin, Wood & Co.	Boston	20	0		
Coleman Bros.	Cambridgeport	10½	9	35	10
Cousens Bros.	Brookline	16	9	35	5
Cowin, J. M.	Medford	9½	5	43	
Crafts, Henry Sons.	Boston, South End	20	6	36	
Cutter, D. J.	Commercial Point	17	0		
Doherty, D.	Dorchester	16	0		
Dunning Bros.	Somerville	12½	5	43	
Emery, W. H. & S. L.	Boston, South End	14	2	40	4
Evans & Co.	Chelsea	12	0		
Fitchburg RR. Co.	Boston, North End	20	3	35	11
Fitz, N. E. & Co.	Charlestown	14	1	44	10
Foster, W. H. & Co.	Boston, North End	15	0		
Frost, Geo. E.	Neponset	15	1	36	
Gibson, N. & Co.	East Boston	18	0		
Gillespie & Pierce.	Brighton	15	12	35	5
Godfrey, O. S. & Co.	Milton	12	3	36	
Gove, A. & Son.	East Boston	16	0		
Hamlin, E. S. & Co.	Boston, South End	16–19	2	40	4
Heaton, J. A.	Brighton	12	14	35	5
Honors & Wardwell	Lynn	11	0		
Hunnewell & Proudfoot	East Cambrige	12	7	35	5
Jackson, W. H. & Co.	Boston, South End	20	6	36	
Jordan H. G. & Co.	Boston, South End	20	3	40	4
Jordan H. G. & Co.	Cambridgeport	12½	8	35	10
Lamper, J. B. & W. A.	Lynn	18	0		
Lee, Nehemiah	Lynn	11½	0		
L. & W.-B. Coal Co.	Boston, Mystic	20	0		
Lewis, J. E. & Co.	Chelsea	16	0		
Locke, E. E.	Malden	9½	3	43	4
Marston, F. A. & Co.	Howe's Wharf	20	2	40	4
McCarty, Jas. & Co.	East Boston	16	0		

NAME.	LOCATION.	Draft. Ft.	Bridges.	Narrowest Draw. Ft.	In.
Morrison, John.	East Boston	18	0		
Morse, R. G. & Co.	Boston, South End	16	7	36	
Mullin, P. J. & Co.	South Boston	11	0		
Newhall, W. M. & Son.	Lynn	12	2		
N. Y. & New England RR.	South Boston	25	0		
Oakes, J. T. & Co.	Chelsea	13	1	59	
Old Colony RR. Co.	Boston, South End	17	7	36	
Patch, C. & Son	Quincy Point	17	1	38	
P. & R. Coal & Iron Co.	Mystic River	22	1	44	10
Phillips & Hodgdon.	Chelsea	18	1	59	
Pocahontas Coal Co.	South Boston	20	1	43	11
Proctor, J. H. & Sons.	Revere	13	3	34	3
Reed & Costello.	Lynn	12½			
Revere Sugar Refinery.	East Cambridge	14	6	35	9
Richards, A. J. & Sons.	Weymouth	14	1	38	
Richardson & Bacon.	Cambridge	15	13	35	5
Robins, J. & Co.	East Boston	18	0		
Rugg, G. H.	Cambridge	14	11	35	10
Sheppard, J. F. & Sons.	Quincy Point	18	8		
Sheppard, J. F. & Sons.	East Braintree	14	2	36	
Smith, G. M.	Cambrigeport	16	8	35	10
Smith & Wiley.	Charlestown	16	1	36	
Sprague & Breed.	Lynn	18	0		
Standard Sugar Refinery.	South Boston	20	3	40	4
Stetson, A. M. & Co.	South Boston	13½	0		
Stewart, J. P. & Co.	Charlestown	17	1	38	10
Thomas & Co.	Boston, South End	20	3	40	4
Thompson, L.	Hingham	8½	0		
Thompson, N. A. Coal Co.	South Boston	14	0		
Tirrell, J. & Co.	Boston, South End	16	2	40	4
Walker, J. A. & Co.	B. & L. RR., Mystic	20	1	38	10
Walker, J. A. & Co.	B. & M. RR.. Mystic R.	16	3	43	4
Warren, F. C.	Howe's Wharf	20	2	40	4
Wellington & Buck.	East Cambridge	14	6	35	9
Wellington, A. C. Coal Co.	Boston, South End	20	3	40	4
Wellington, H. & Co.	East Cambridge	14½	7	35	9
West End Street R'y Co.	Boston, South End	17	7	36	
West End Street R'y Co.	East Cambridge	14½	7	35	9
Wild, B. F. & Co.	Charlestown	18	1	38	10
Williams, Gilbert.	Charlestown	12	1	38	10
Winslow, G. M. & Co.	Boston, North End	17–30	1	36	

In 1852, the first steam collier was put in the trade between Newcastle-on-Tyne and London, England. She was known as the *John Bowes*; she took on 540 tons in 12 hours, made the trip in 48 hours, and unloaded in 18 hours. A note of the trip says:—"The old colliers take a month to complete the voyage; this has been done in a week."

Of the shipments at Cleveland, O., last year 136,832 tons went to Canada; at Ashtabula, 56,933 tons were sent to Canada, and at Lorain, 27,509 tons were shipped to Canada.

STEAMERS COALED AT NEW YORK.

An approximate statement of the Bituminous coal loaded into ocean steamers at this port shows that there are over one million and a half gross tons so taken; of this perhaps 150,000 tons is the "Pocahontas" coal and the remainder is "Clearfield." The principal lines and their yearly tonnage are given below:

Anchor Line	50,000 tons.	Red Star Line	40,000 tons.
Atlas Line	30,000 tons.	National Line	25,000 tons.
Cromwell Line	20,000 tons.	State Line	10,000 tons.
Clyde S. S. Co	30,000 tons.	Simpson, Spence & Young	12,000 tons.
Cunard S. S. Co	100,000 tons.	Morgan Line	60,000 tons.
French Line	70,000 tons	White Star Line	75,000 tons.
Funch, Eyde & Co	40,000 tons.	Arkell & Douglass	10,000 tons.
Hamburg Line	100,000 tons.	Spanish Line	20,000 tons.
Inman Line	75,000 tons.	Red "D" Line	10,000 tons.
Guion Line	25,000 tons.	Busk & Jevons	15,000 tons.
N. Y. & Cuba Mail S. S.	40,000 tons.	Booth & Co	10,000 tons.
Wilson Line	10,000 tons.	Williams & Rankin	10,000 tons.
Pacific Mail S. S. Co	20,000 tons.	Standard Oil Co	80,000 tons.
J. E. Kerr & Co	10,000 tons.	Atlantic Transport Line	10,000 tons.
C. H. Mallory & Co	80,000 tons.	U. S. & Brazil Mail Line	20,000 tons.
Red Cross Line	5,000 tons.	C. P. Sumner & Co	10,000 tons.
H. Stursburg & Co	5,000 tons.	J. W. Ewell & Co	10,000 tons.
North German Lloyd Co	120,000 tons.	Hagemeyer & Brown	5,000 tons.
Phelps, Bros. & Co	30,000 tons.	Tramp steamers	200,000 tons.
Quebec S. S. Co	15,000 tons.		

DIVIDENDS OF THE ANTHRACITE CARRIERS.

	1883.	'84	'85.	'86.	'87.	'88.	'89.	'90.	'91.	'92.
Phila. & Reading RR. Co	...	...	...	...	...	...	...	...	...	...
†Lehigh Valley RR. Co	8	8	6	4	4½	5	5	5	5	5¼
Del., Lacka. & W. RR. Co	8	8	7¾	7	7	7	7	7	7	7
Delaware & Hudson Canal Co	7	7	6	5	5	6	7	7	7	7
Central RR. Co. of N. J	1½	4½	...	...	...	...	3	6	6½	7
Pennsylvania RR. Co	8½	7	5	5	5½	5	5	5½	6	6
N. Y., L. E. & W. RR. Co	*6	*6	...	...	...	...	...	...	...	*3
N. Y., O. & W. Ry. Co	...	...	...	...	...	...	...	...	...	...

*Upon preferred stock only.
†Paid 10% on preferred and 5¼% on common stock in 1892.

The Columbus, Shawnee & Hocking Ry. Co. furnishes this comparative statement of coal tonnage handled for 1890, 1891 and 1892 in tons.

	1890.	1891.	1892.
Chicago coal	52,237	85,668	88,775
Railroad fuel coal	59,084	160,349	146,402
Lake shipment	150,316	242,999	215,369
Miscellaneous points	192,121	303,665	450,041
Total net tons	453,758	792,681	900,587

At Pensacola, Florida, there was exported during the year 1892, 40,186 tons of Alabama coal, in addition to that used for coaling steamers and this amount will be largely increased during the present year.

WHAT WAS COMPRISED IN THE ANTHRACITE COMBINATION.

In his latest report to the stockholders of the Philadelphia & Reading RR. Co., the president thereof stated:

"Soon after the last annual meeting, negotiations were opened with the management of the Lehigh Valley RR. Co. for the acquisition by lease of its roads, extending from the waters of New York Bay to the great lakes at Buffalo, New York, with a line of steamers on the lakes reaching the ports of Duluth, Milwaukee and Chicago, giving the command of a large proportion of east bound traffic for distribution in the populous local territory of the Reading lines, and for export from Philadelphia, at the same time extending and enlarging the markets for the product of the industries of the City of Philadelphia and other points on the Reading lines. A lease was agreed upon for the term of nine hundred and ninety-nine years upon terms which were communicated to the public and are already familiar to the shareholders. This arrangement has already contributed to both systems an increase of traffic of all kinds, although in operation for too brief a period to effect the change in the accustomed channels of traffic to the full extent which is confidently looked for. The acquisition of this powerful line also enables the Reading Co. to compete with other trunk lines for the large volume of west-bound traffic from the eastern centres of trade and industry.

"For over a quarter of a century the traffic relations subsisting between this company and the Central RR. Co. of New Jersey have been of the most intimate and harmonious character, the latter furnishing to a great extent the terminal facilities in New York for the traffic of the Reading Co., while this company furnished in Philadelphia the requisite terminal facilities for traffic originating on the lines of the Central Co. The mutual interchange of traffic had reached large proportions and was daily growing in extent and importance. It had been governed in the past by contracts and in formal agreements which it was deemed to the interest of both parties to place in a more permanent and tangible form. So long as the ownership of the controlling interest in both properties should remain in the hands of the present holders, the parties were entirely confident that motives of mutual interest would preserve the prevailing methods of interchange so advantageous to both, but it was sought to place these relations beyond the reach of a temporary change of the ownership of either, which might result in serious injury to the other, through diversion of traffic to other lines, or a denial of the use by either of the valuable terminals of the other.

"Under these circumstances, a lease of the railroads of the Central RR. Co. of New Jersey to the Port Reading RR. Co. was executed shortly after the last annual meeting. The Port Reading Co., it will be remembered, is a corporation of the State of New Jersey, which was promoted by this company, as set forth in previous reports. At the time this lease was executed there existed, under the laws of New Jersey, certain technical obstacles to the consummation of the transtion, which, as they involved no principle of public policy, it was supposed would readily be removed by the Legislature of that State. Accordingly, a measure was introduced in that body which met with no oppositiou on public grounds, and was passed with substantial unanimity.

"But before the Act had received the sanction of the Executive, notwithstanding the fact that the provisions of the lease confined the conduct of the operations within the precise lines upon which the business had been conducted for a period of upwards of twenty-five years, a clamor against the Act was raised on account of a supposed public injury, and the Act was disapproved by the Governor in a message which, while distinctly pointing out the justice and propriety of the measure and of the terms of the contract, placed its disapproval on grounds relating to the supposed effect of the combination on the price of Anthracite coal in New Jersey, although the contracts in no way dealt with the subject, and conferred upon the Port Reading Co. no interest in nor connection with it, except merely as a common carrier of the products of all shippers and producers alike, with strict covenants against any form of discrimination. Subsequently, some months after the negotiation of the lease, and more than a month after the filing of the veto message, above referred to, the Philadelphia & Reading Coal & Iron Co., a corporation of Pennsylvania, acquired by purchase the coal to be produced by the Lehigh & Wilkes-Barre Co., also a corporation of Pennsylvania, in which the Central RR. of N. J. held a considerable interest, and also that to be produced by various other miners and shippers whose mines were located on lines controlled by the Central Co., by lease or otherwise."

Acting under the instructions of the Chancellor of the State of New Jersey the property of the Central RR. of N. J. was, on and after September 1, 1892, turned over to the latter corporation, and thenceforth operated solely by it. On and after December 31, 1892, the Lehigh & Wilkes-Barre Coal Co. resumed possession of the wharves, depots and yards formerly controlled by it.

The lease of the Lehigh Valley RR. Co. to the P. & R. RR. Co., was by the findings of a master in chancery appointed to take evidence thereon, declared to be legal.

COAL TRADE OF THE NEW YORK CANALS.

The quantity carried on the State canals, in both directions, East and West, is stated by the Superintendent of Public Works to have been as below :—

Quality—Tons 2,000 lbs.	1888.	1889.	1890.	1891.	1892.
Anthracite……………………	1,166,926	1,048,328	762,536	789,763	739,916
Bituminous ……………… …	52,754	46,569	67,618	91,739	92,481

The mines of the Canadian Anthracite Coal Co. are developing fast at Canmore and Anthracite, near Banff, on the Canadian Pacific Ry. An analysis by the Geological Survey shows 1.04 water; 9.15 vol. matter; 87.18 fixed carbon and 2.63 ash.

Gas coal in Germany sold at an average of $2.05 per metric ton at Dusseldorf, in the 12 years 1880—1891. At Breslau the average was $1.59; at Dortmund $1.74, and at Essen $2.13.

In the calendar year 1891, the Columbus, Hocking Valley & Toledo Ry. Co. carried 2,258,068 tons of coal originating on its lines in Ohio, 82,684 tons originating on connecting lines, and 197,251 tons of fuel coal.

THE POUGHKEEPSIE BRIDGE ROUTE.

In the past year this line, now known as the Philadelphia, Reading & New England, was leased by the Philadelphia & Reading RR. Co. in order to secure to the latter company the means for a wider distribution of the Bituminous and Anthracite coal originating on its lines in Pennsylvania; this, with its other allied lines in the New England States, is likely to prove of great advantage to the parent line.

Early in January it looked very much as if the control of the bridge would pass into the hands of the Central RR. of N. J. and the Lehigh Coal & Navigation Co., under an agreement guaranteeing 80 per cent. of the par value of the bridge bonds in a new loan at 4 per cent. interest. Afterwards, however, the bridge passed into the hands of the Philadelphia & Reading RR. Co. It appears that the first project was approved by the Lehigh Navigation directors, but failed to receive the sanction of the Central board, who thought they were paying too much, and then the arrangement with the Reading RR. was formed. Under it the P. & R. Co. gives a guarantee of $6,250,000 bonds at 4 per cent. made up of $3,750,000 bridge bonds and $2,500,000 to cover the mortgage securities on the connecting railroads. The bargain was made between the Philadelphia & Reading and the Delaware & New England Co., which is the parent organization of the bridge combination, and control passed by the transfer of two-thirds of the Delaware & New England stock.

There has long been an effort to get coal into New England cities and towns without the trouble and expense attendant upon its transhipment from cars into boats and then again into cars at certain of the ports along the Sound or on the New England coast; there has been coal sent all-the-way-round, via Troy and Albany, into Springfield and many of the towns in Massachusetts. It is like going round three sides of a barn to get there in this fashion; still there has been quite a trade, at a high cost, developed. Then there has been coal landed at Fishkill from boats into cars in a small way; the floating of cars across from Newburgh is another feature there. These are each and all experiments, or rather a reflex of the effort to supply, if posible, the desire which exists on the part of every dealer and consumer in New England to be brought into direct contact with the producer of the article—Fuel. In no way can this result be attained with such a degree of success as via the Poughkeepsie Bridge route. This direct line is a connecting link between the producer and the consumer and the wisdom of its original projectors will be shown by its traffic.

While the coal from other districts may go *via* this line, it is naturally to be anticipated that the coal from mines tributary to the P. & R. system will have the best facilities for an increasing trade.

The *Wyoming* mines tributary to the New Jersey Central line—in this district—can send down the L. & S. division and via the Lehigh & Hudson road to a point on the P., R. & N. E., near Campbell Hall, N. Y.

The *Lehigh* coal can go by the Lehigh Valley, or by the New Jersey Central, to Phillipsburg, N. J., and thence over the Lehigh & Hudson and its connecting links.

The *Schuylkill* coal can go by the Philadelphia & Reading and by the Lehigh

Valley lines leading to Philipsburg, and thence via the L. & H. and its connections.

For *soft coal* supply, there are the Beech Creek, Coaldale, Morrisdale, and others shipping over the connections of the Philadelphia & Reading RR. that can go east on this road, via the New Jersey Central and its connections. There is plenty of coal, there are plenty of lines to carry it, and they are all hungry for a share of the growing New England trade.

The annual report of the Central RR. of N. J. shows 5,156,565 tons of Anthracite carried last year, against 5,722,345 tons in 1891. In this report, President J. Rogers Maxwell says: "Under the lease of your property to the Port Reading RR. Co., it was operated by the latter company's officials until August 31, 1892, at which time the Port Reading Co. was enjoined from exercising further control or jurisdiction and your company, in obedience to the order of the Court of Chancery of the State of New Jersey, resumed the management and operation of the property. Subsequent thereto the lease has been cancelled by mutual agreement, and this report treats the operations of the road as if the lease had never been made."

The Lehigh Coal & Navigation Co's report shows that during 1892 the earnings of the Lehigh & Susquehanna RR. system fell considerably below those of the previous year and the rental was decreased $101,840. This falling off was mainly due to a large decrease in the amount of Anthracite passing over the road, the shipments from the Drifton branch having been almost wholly diverted in consequence of contracts made by the P. & R. companies with the shippers and those from the Wyoming region having been very much diminished from similar causes. The company's coal property produced a greater tonnage than that of any previous year, the total production being 1,293,662 tons. The cost of producing coal averaged $\$1.47\frac{6}{10}$ per ton.

In the mines at Fuente, Mexico, it is found that there are two seams of coal aggregating 8 feet in thickness. Before the close of the current year it is intended that one mine will yield a daily output of 500 tons. Another shaft will be put down and worked upon even a more extensive scale, preparations being now made to take from this shaft 1,000 tons of coal per day. Miners are paid 75 cents per ton for mining coal, and when the entries are completed an expert miner will take out from six to eight tons of coal per day. A railroad is being operated from the mines to the tipple at a connection with the Mexican International. From this tipple coal from the mining cars which have a capacity of one and one-half tons are dumped into the standard cars beneath and shipped to market.

The Government statistician at Victoria, British Columbia, gives the output of the New Vancouver Coal Co. at 433,298 tons last year, and all the mines in B. C. at 426,281 tons.

The Lehigh & Wilkes-Barre Coal Co. produced 2,062,536 tons at its mines in the Wyoming region; 564,655 tons at its Lehigh mines and there were 85,449 tons purchased, making a total of 2,712,640 tons.

R. H. WILLIAMS. S. T. PETERS.

WILLIAMS & PETERS,

COAL.

GENERAL SALES AGENTS FOR

The New York Lake Erie and Western Railroad Co's

Anthracite and Bituminous Coal,

BLOSSBURG AND DAGUS COKE.

37 Meadow St., New Haven.
4 Liberty Square, Boston.
1 Broadway, New York.
298 Main Street, Buffalo.

The New Coaldale Co.

MINERS AND SHIPPERS

Coaldale, Highland,

Forest and Acme.

Bituminous Coal.

General Office, 31 Broadway, New York.

R. H. CHIPMAN, General Agent.

Branch Office, 70 Kilby St., Boston, Mass.

WAIT & CLARK, Agents.

328 Chestnut Street, Philadelphia, Pa.

HENRY KRAEGER, Agent.

Cuts for Retailers' Advertisements

The Coal Trade Journal makes a specialty of cuts for the use of retail coal dealers, a few small specimens of which are shown on the following page.

We have the following:

"I sell and deliver 2,000 ℔s." 3 sizes, 30, 40 and 60 cents.
"We sell and deliver 2,000 ℔s." 2 sizes, 50 and 75 cents.
"Good coal always on hand," 50 cents.
"Prompt delivery," 60 cents.
"Thermometer going down," 60 cents.
"Home, Sweet Home," (phonograph) 60 cents.
"Woman goes on strike," $1.00.
"Justice," full weight, 2 sizes, 90 cents and $1.00.
"A prompt response," 2 sizes, 90 cents and $1.00.
"The weight ⁂" 2 sizes, 90 cents and $1.00.
"It gets there, we aim to," $1.00.
"All-rail coal," a P. & R. car, 2 sizes, 90 cents and $1.00.
"All-rail coal," a D., L. & W. car, $1.00.
"Very nice," a girl's face, 2 sizes, 90 cents and $1.00.
"The questionable Black Crook," 2 sizes, 90 cents and $1.00.
"Ladies Prefer," 1 size, $1.00.

As it sometimes happens that advertisers are cramped for space we have had our most popular cuts made in a reduced size. Although the pictures are much condensed thereby we think the cuts will be of value to dealers who do not wish to buy much space in their local paper.

We shall be pleased to furnish on application a complete set of pictures of the cuts we have for sale.

In order to increase the value of our cuts to retailers we have decided to sell but one electro of each design in any town when so requested, and thus allow each dealer's advertising to appear original and distinctive if he so desires. Dealers who wish to take advantage of this rule will please inform us of the fact when ordering.

Please send cash with order, stamps taken. No credit item less than $1.00. A discount of 20% on orders of $5.00 or more.

Address, THE COAL TRADE JOURNAL,
Times Building, New York.

Cuts for Retailers' Advertisements

“All-Rail Coal.
A. P. & R. Car.

Poughkeepsie Bridge Route
WE HANDLE
ALL RAIL COAL SHIPPED
via Poughkeepsie Bridge Route
DIRECT FROM THE MINES TO OUR YARDS.

Price, 90 Cents.

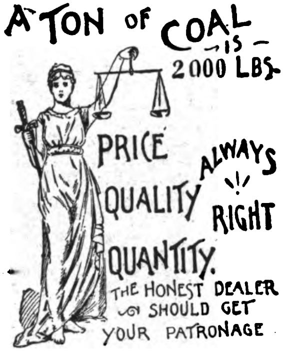
“Very Nice.”

Price, 90 Cents.

“The Questionable
Black Crook.”

Price, 90 Cents.

“Justice.”



Price, 90 Cents.

“The Weight * * *.”

Price, 90 Cents.

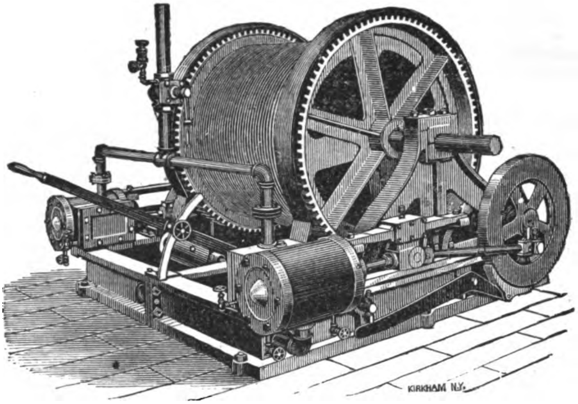
A Prompt Response.”

Price. 90 Cents.

Address, THE COAL TRADE JOURNAL,
Times Building, New York.

HOISTING ENGINES

FOR MINES.



HOISTING
MACHINERY
FOR
COAL YARDS,
FURNACES,
ETC.

Engines
and Boilers
FOR
Docks, Derricks
AND
Vessels.

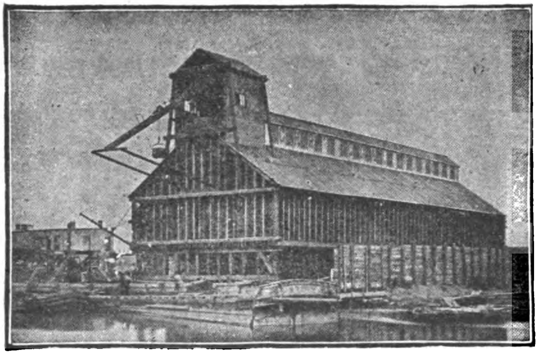
LIDGERWOOD MANUFACTURING COMPANY,
Boston, Chicago, Portland, Oregon. 96 LIBERTY ST., NEW YORK.

C. W. HUNT COMPANY,
45 BROADWAY, NEW YORK.

ENGINEERS.

HUNT'S SYSTEM
FOR
Unloading & Transferring
COAL,
CONSISTING OF
STEAM SHOVEL, ELEVATOR
AND
AUTOMATIC OR CABLE
RAILWAYS.

Coal can be taken from the Vessel and stored in any desired bin within two thousand feet of the Wharf at a cost of *a very few cents* per ton.



DETAILED INFORMATION FURNISHED ON APPLICATION.
COAL BUCKETS, CONVEYORS, TIP CARS, TACKLE, BLOCKS, ROPE. ENGINES.
CABLE AND INDUSTRIAL RAILWAYS. STEAM SHOVELS.

R. B. WIGTON & SONS,

MINERS AND SHIPPERS OF

Bituminous Coals,

FROM MORRISDALE AND CUNARD MINES.

FOR STEAMSHIP, ROLLING MILL, LOCOMOTIVE, GLASS WORK.
SMITHING AND STEAM GENERATING PURPOSES.

"Manufacturers of Coke and Fire Brick."

Shipping Wharves { Port Liberty, N. Y., South Amboy N. J., Canton, Baltimore.
Port Richmond and Greenwich Point, Philadelphia.

OFFICES, { No. 228 SOUTH FOURTH STREET, PHILADELPHIA.
No. 50 BROADWAY, - - - NEW YORK.

ROBINSON, HAYDON & CO.,

SHIPPERS OF

Lee and Glendon Lehigh,

LACKAWANNA, WILKES-BARRE,

AND BITUMINOUS COALS.

No. 1 BROADWAY, NEW YORK.

JAMES E BOYD G. H. SWORDS, SPECIAL. EDGAR O. SCHERMERHORN.

A. S. SWORDS & CO.,

WHOLESALE DEALERS IN

COAL,

Nos. 1 and 3 BROADWAY,

Room 30 Washington Building. NEW YORK.

"Erie Line" Coal Agents **New England All-Rail Coal Agents**

FOR THE SALE OF

PENNSYLVANIA COAL COMPANY'S PITTSTON COAL.

American Coal Company,
GEORGES CREEK
CUMBERLAND COAL,
«STANDARD · QUALITY.»
SHIPPING WHARVES:
Baltimore, Philadelphia, South Amboy and Jersey City.
Office, No. 1 BROADWAY, Room 152,
"Washington Building," NEW YORK.

G. L. Stuebner & Co.,
MANUFACTURERS OF
SELF-DUMPING
Coal, Stone and Ore Buckets,
Patent Bottom Dumping Bucke's.
Side and Bottom Dumping Cars for
Coal Elevators.
Charging Cars. Iron Wheelbarrows, Iron
Dock and Hook Blocks, Etc., Etc.
Long Island City, N. Y.

THE COAL TRADE JOURNAL of January 4th, 1893, said:—"During the past few weeks important changes have been made in this paper, first, the reading matter was set 'solid' instead of 'leaded,' thereby gaining one additional page of space, second, four pages have been added to the number devoted to reading matter, third, an effort has been made to avoid long articles and give all news in brief paragraphs, fourth, beginning with this week an improved quality of paper is being used which weighs ten pounds to the ream more than our former supply did. There has been an increased expense of 16⅔% incurred on account of extra weight alone. Taking all in all, we think it is plainly evident that we propose to fully earn the increased subscription price."

WARD & OLYPHANT,

21 Cortlandt St., New York. 30 Kilby St., Boston.

COAL.

Delaware and Hudson Canal Co's Lackawanna.

ALSO

LEHIGH, CUMBERLAND AND CLEARFIELD.

BOSTON AGENTS, - - - DARROW, MANN & CO.

JOHN D. HEISSENBUTTEL,

WHOLESALE DEALER IN

Anthracite and Bituminous Coals.

Office, No. 147-148, No. 1 BROADWAY,

WASHINGTON BUILDING, NEW YORK.

WILLIAM HORRE, E. B. HOLDEN.

WILLIAM HORRE & CO.,

WHOLESALE DEALERS IN THE

Delaware, Lackawanna & Western RR. Co's

SCRANTON COAL.

No. 1 BROADWAY, (Room 194,) NEW YORK.

E. L. HEDSTROM,

WHOLESALE DEALER

ANTHRACITE AND BITUMINOUS.

COAL,

Office Nos. 16, 17 & 18 White Building, Buffalo, N. Y.

E. L. HEDSTROM & CO., 115 DEARBORN STREET, CHICAGO.

ALSO RACINE.

CONSOLIDATION COAL CO.,

OF MARYLAND.

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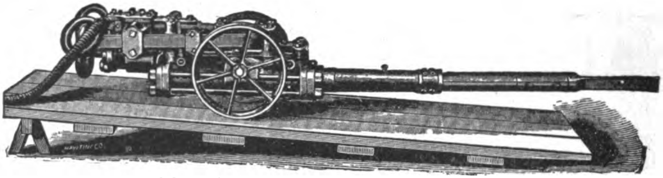

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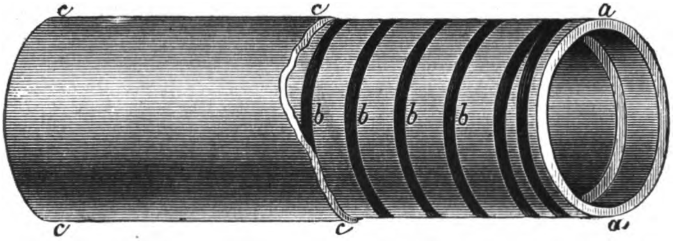

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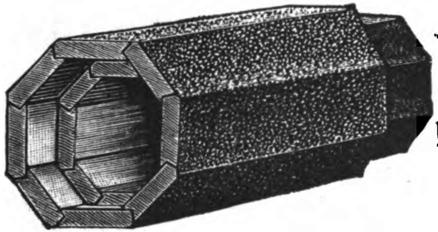

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